

41029

Access DB# 87431

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: TRUSTE DYC Examiner #: 64334 Date: 2/24/83
 Art Unit: 1711 Phone Number 301-2477 Serial Number: 1-519-72
 Mail Box and Bldg/Room Location: 34029 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

*Polypeptide unit of claim 7.
 And - capped w/ moieties of claim 3 or 5. Thanks.*

(Closest art printed out first)

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| | Type of Search | Vendors and cost where applicable |
|---------------------------------------|------------------------|-----------------------------------|
| Searcher: <u>22</u> | NA Sequence (#) _____ | STN <u>\$ 225.00</u> |
| Searcher Phone #: _____ | AA Sequence (#) _____ | Dialog _____ |
| Searcher Location: _____ | Structure (#) <u>3</u> | Questel/Orbit _____ |
| Date Searcher Picked Up: _____ | Bibliographic _____ | Dr.Link _____ |
| Date Completed: <u>2-24-83</u> | Litigation _____ | Lexis/Nexis _____ |
| Searcher Prep & Review Time: <u>2</u> | Fulltext _____ | Sequence Systems _____ |
| Clerical-Prep Time: _____ | Patent Family _____ | WWW/Internet _____ |
| Online Time: _____ | Other _____ | Other (specify) _____ |

=> file reg

FILE 'REGISTRY' ENTERED AT 13:33:42 ON 26 FEB 2003
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FILE 'LREGISTRY' ENTERED AT 10:45:51 ON 26 FEB 2003

L1 STR
L2 STR

FILE 'REGISTRY' ENTERED AT 11:30:11 ON 26 FEB 2003

L3 SCR 2043
L4 50 SEA SSS SAM L1 AND L3
L5 5617 SEA SSS FUL L1 AND L3
SAV L5 TRU208/A
L6 45 SEA SUB=L5 SSS SAM L1 AND L2

FILE 'HCAPLUS' ENTERED AT 12:23:07 ON 26 FEB 2003

L7 16739 SEA YASUDA ?/AU
L8 3427 SEA KNOLL ?/AU OR KNOELL ?/AU
L9 1930 SEA MEISEL ?/AU
L10 740 SEA NEHER ?/AU
L11 569 SEA SCHERF ?/AU
L12 36 SEA NOTHOFFER ?/AU
L13 7 SEA L7 AND L8 AND L9 AND L10 AND L11 AND L12
SEL L13 1-7 RN

FILE 'REGISTRY' ENTERED AT 12:24:10 ON 26 FEB 2003

L14 50 SEA (185690-39-5/BI OR 188201-14-1/BI OR 188201-16-3/BI
L15 28 SEA L14 AND L5
L16 10 SEA L15 AND N/ELS

FILE 'HCAPLUS' ENTERED AT 12:27:17 ON 26 FEB 2003

L17 8 SEA L16
L18 49479 SEA ENDCAP? OR ENDBLOCK? OR ENDGROUP? OR ENDUNIT? OR
(CHAIN? OR POLYM?) (2A)TERMINA? OR END(2A)(BLOCK? OR GR#
OR GRP# OR GROUP? OR UNIT? OR CAP OR CAPS OR CAPPED OR
CAPPING#)
L19 352 SEA L5/D OR L5/DP
L20 42 SEA L19 AND L18
L21 179027 SEA ?ANILIN?
L22 11 SEA L20 AND L21

FILE 'REGISTRY' ENTERED AT 12:34:12 ON 26 FEB 2003

L23 45 SEA SUB=L5 SSS SAM L1 AND L2 AND L3
L24 704 SEA SUB=L5 SSS FUL L1 AND L2 AND L3
SAV L24 TRU208A/A

L25 346 SEA L24 AND 1/NC

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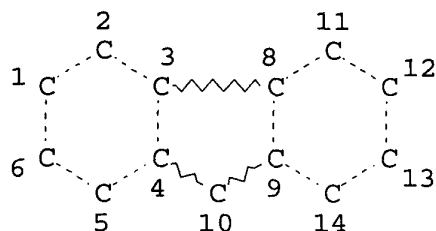
L26 372 SEA L25
 L27 490 SEA L24
 L28 28 SEA L26 AND L18
 L29 31 SEA L27 AND L18
 L30 25247 SEA (CHAIN? OR POLYM?) (2A)TERMIN?
 L31 226 SEA (?ARYLAMIN? OR ?PHENYLAMIN? OR ?NAPHTHAL? OR
 ?NAPHTHAL?) (2A)TERMIN?
 L32 3 SEA L19 AND L31
 L33 4244 SEA L5
 L34 4 SEA L33 AND L31
 L35 159171 SEA DIOD? OR FET OR F(W)E(W)T OR TRANSISTOR?
 L36 79672 SEA EL OR E(W)L OR ELECTROLUM!N? OR ORGANOLUM!N? OR
 (ELECTRO OR ORG# OR ORGANO) (2A)LUM!N? OR LIGHT? (2A) (EMISS
 ION? OR EMIT?)
 L37 143346 SEA PHOTOELEC? OR PHOTO(2A) (ELEC# OR ELECTRIC? OR VOLT?
 OR GALVAN?) OR PHOTOVOLT? OR PHOTOGALV?
 L38 181236 SEA (HOLE# OR CHARG? OR ELECTRON#) (2A) (TRANSPORT? OR
 TRANSFER?)
 L39 131070 SEA LCD# OR L(W)C(W)D OR (LIQ# OR LIQUID?) (2A)CRYST?
 L40 15 SEA (L20 OR L28 OR L29) AND ((L35 OR L36 OR L37 OR L38
 OR L39))
 L41 3 SEA (L20 OR L28 OR L29) AND 75/SC,SX

FILE 'HCAPLUS' ENTERED AT 12:55:43 ON 26 FEB 2003

E COATING MATERIALS/CV
 L42 230876 SEA "COATING MATERIALS"/CV
 E COATING PROCESS/CV
 L43 102470 SEA "COATING PROCESS"/CV
 L44 3 SEA (L20 OR L28 OR L29) AND (L42 OR L43)
 L45 2 SEA L20 AND L31
 L46 13 SEA L17 OR L32 OR L34 OR L41 OR L44 OR L45
 L47 9 SEA L22 NOT L46
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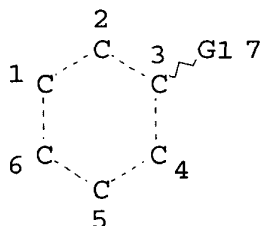
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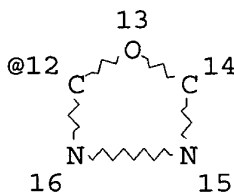
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 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 13

STEREO ATTRIBUTES: NONE
 L2 STR



N @10



VAR G1=10/12
 NODE ATTRIBUTES:
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 CONNECT IS E3 RC AT 10
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RSPEC 12 3
 NUMBER OF NODES IS 13

STEREO ATTRIBUTES: NONE
 L3 SCR 2043
 L5 5617 SEA FILE=REGISTRY SSS FUL L1 AND L3
 L24 704 SEA FILE=REGISTRY SUB=L5 SSS FUL L1 AND L2 AND L3

100.0% PROCESSED 2364 ITERATIONS
 SEARCH TIME: 00.00.01

704 ANSWERS

=> file hcaplus

FILE 'HCAPLUS' ENTERED AT 13:34:15 ON 26 FEB 2003

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=> d l46 1-13 cbib abs hitstr hitind

L46 ANSWER 1 OF 13 HCAPLUS. COPYRIGHT 2003 ACS

2003:41950 Document No. 138:108356 Photocurable polymers for use in coatings. Halik, Marcus; Walter, Andreas; Lowack, Klaus; Sezi, Recai (Infineon Technologies A.-G., Germany). Ger. Offen. DE 10131536 A1 20030116, 20 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2001-10131536 20010629.

AB The title polymers, with good soly. in org. solvents and good film-forming properties, bear OH groups, amino groups, and arom. substituents of specified structure. A polymer was prepd. from 40 mmol each 2,2-bis(3-amino-4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane and 2,7-biphenylylenedicarboxylic chloride and **end-capped** with 0.8 mmol cis-endo-5-norbornene-2,3-dicarboxylic anhydride. Photocuring of this polymer and its adhesion to Si, Ti and Ta nitride are exemplified.

IT **486429-82-7DP**, nadic-capped
(photocurable polymers for use in coatings)

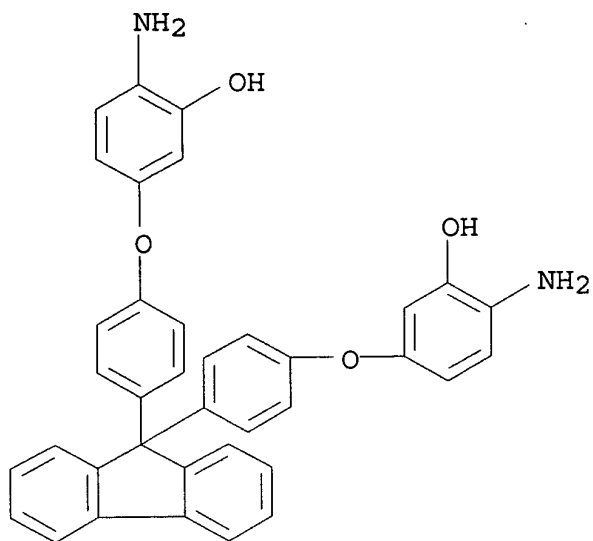
RN 486429-82-7 HCAPLUS

CN 2,7-Biphenylenedicarbonyl dichloride, polymer with
3,3'-[9H-fluoren-9-ylidenebis(4,1-phenyleneoxy)]bis[6-aminophenol]
(9CI) (CA INDEX NAME)

CM 1

CRN 359642-31-2

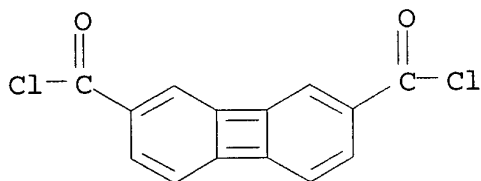
CMF C37 H28 N2 O4



CM 2

CRN 69417-81-8

CMF C14 H6 Cl2 O2



IC ICM C08G083-00

ICS C09D005-24; C08J003-24; H01L021-312

CC 42-10 (Coatings, Inks, and Related Products)

IT **Coating materials**

(photocurable; photocurable polymers for use in coatings)

IT 129-64-6DP, Nadic anhydride, reaction products with
biphenylene-contg. polymers 486429-81-6P **486429-82-7DP**,
nadic-capped 486447-48-7P

(photocurable polymers for use in coatings)

L46 ANSWER 2 OF 13 HCAPLUS COPYRIGHT 2003 ACS

2002:786105 Document No. 138:90164 Conjugated polyfluorene/polyaniline
block copolymers-improved synthesis and nanostructure formation.
Guntner, Roland; Asawapirom, Udom; Forster, Michael; Schmitt,
Cristopher; Stiller, Burkhard; Tiersch, Brigitte; Falcou, Aurelie;
Nothofer, Heinz-Georg; Scherf, Ullrich (Polymerchemie, Institut fur

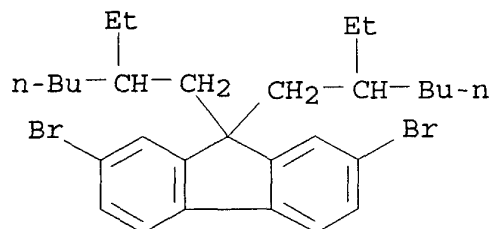
Physikalische Chemie, Universitat Potsdam, Golm, 14476, Germany).
Thin Solid Films, 417(1-2), 1-6 (English) 2002. CODEN: THSFAP.
ISSN: 0040-6090. Publisher: Elsevier Science B.V..

- AB Sol. poly(9,9-dialkylfluorene)/poly(2-alkylaniline) tri-block copolymers were synthesized following an improved two-step synthetic procedure: (i) aryl-aryl coupling of a 2,7-dibromo-9,9-dialkylfluorene according to Yamamoto in the presence of 4-bromoaniline as a monofunctional **end-capping** reagent, and (ii) subsequent oxidative condensation with a 2-alkylaniline. The bluish colored conjugated-conjugated block copolymers were characterized by GPC, NMR, and UV-Vis spectroscopy. At. force microscopy (AFM) and TEM (TEM) of spin-coated films clearly show the formation of nanostructured materials, indicating nanoscopic ordering on a length scale of approx. 100-300 nm.
- IT **188201-16-3DP**, 9,9-Bis(2-ethylhexyl)-2,7-dibromofluorene homopolymer, 4-aminophenyl terminated
(prepn. and nanostructure of conjugated polyfluorene/polyaniline block copolymers)
- RN 188201-16-3 HCAPLUS
- CN 9H-Fluorene, 2,7-dibromo-9,9-bis(2-ethylhexyl)-, homopolymer (9CI)
(CA INDEX NAME)

CM 1

CRN 188200-93-3

CMF C29 H40 Br2



- CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): **75**
- IT **188201-16-3DP**, 9,9-Bis(2-ethylhexyl)-2,7-dibromofluorene homopolymer, 4-aminophenyl terminated 484018-06-6P
(prepn. and nanostructure of conjugated polyfluorene/polyaniline block copolymers)

L46 ANSWER 3 OF 13 HCAPLUS COPYRIGHT 2003 ACS

2002:735342 Document No. 138:73660 Self-organization of supramolecular helical dendrimers into complex electronic materials. Percec, V.; Glodde, M.; Bera, T. K.; Miura, Y.; Shiyanovskaya, I.; Singer, K. D.; Balagurusamy, V. S. K.; Heiney, P. A.; Schnell, I.; Rapp, A.; Spiess, H.-W.; Hudson, S. D.; Duan, H. (Department of Chemistry, Roy & Diana Vagelos Laboratories, University of Pennsylvania,

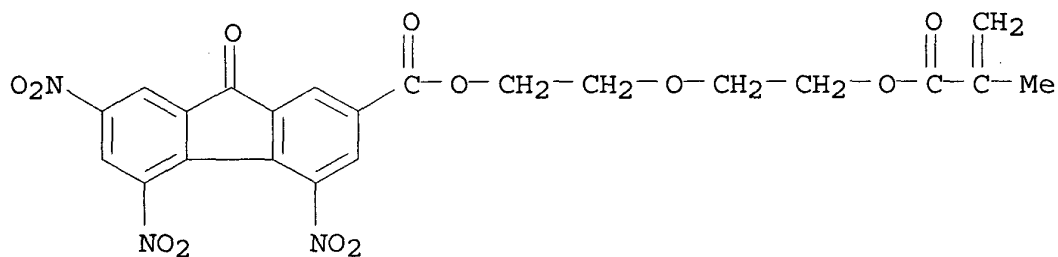
Philadelphia, PA, 19104-6323, USA). Nature (London, United Kingdom), 419(6905), 384-387 (English) 2002. CODEN: NATUAS. ISSN: 0028-0836. Publisher: Nature Publishing Group.

- AB Fluorine-terminated carbazole, naphthalene, pyrene derivs., and fluorenone derivs. were prepd. and their charge-carrier mobility measured. Donor-acceptor complexes of a fluorine-terminated polymers and low mol. wt. compds. were prepd. and their charge-carrier mobility measured. Self-assembly of fluorinated tapered dendrons was shown to drive the formation of supramol. liq. crystals with promising optoelectronic properties from a wide range of org. materials. Attaching conducting org. donor or acceptor groups to the apex of the dendrons led to supramol. nanometer-scale columns that contain in their cores .pi.-stacks of donors, acceptors or donor-acceptor complexes exhibiting high charge carrier mobilities. Functionalized dendrons and amorphous polymers carrying compatible side groups coassembled so that the polymer is incorporated in the center of the columns through donor-acceptor interactions and exhibits enhanced charge carrier mobilities.
- IT 476213-71-5P, Poly[2-[2-[2-(2-Methacryloylxyethoxy)ethoxy]ethoxy]ethyl (4,5,7-trinitro-9-fluorenone)-2-carboxylate] (electron diffraction and effect of temp. on charge-carrier mobilities of self-assembling fluorine-terminated liq. cryst. dendrons, polymers, and assocd. electron donor-acceptor complexes)
- RN 476213-71-5 HCAPLUS
- CN 9H-Fluorene-2-carboxylic acid, 4,5,7-trinitro-9-oxo-, 2-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 476213-70-4

CMF C22 H17 N3 O12



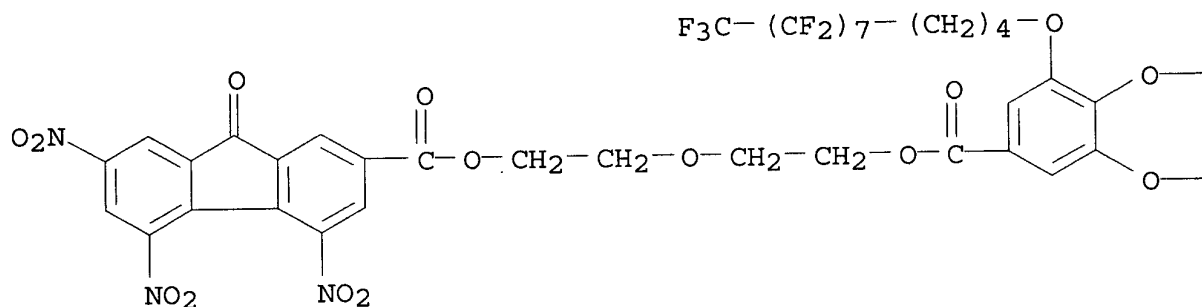
- IT 476213-68-0P 476213-69-1P 476213-72-6P (electron diffraction and effect of temp. on charge-carrier mobilities of self-assembling fluorine-terminated liq. cryst. dendrons, polymers, and assocd. electron donor-acceptor complexes)

RN 476213-68-0 HCAPLUS
 CN 9H-Fluorene-2-carboxylic acid, 4,5,7-trinitro-9-oxo-,
 2-[2-[[3,4,5-tris[(5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-
 heptafluorododecyl)oxy]benzoyl]oxy]ethoxy]ethyl ester, compd.
 with 9-ethenyl-9H-carbazole homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 476213-66-8
 CMF C61 H38 F51 N3 O15

PAGE 1-A



PAGE 1-B

— $(\text{CH}_2)_4-(\text{CF}_2)_7-\text{CF}_3$

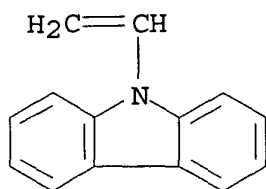
— $(\text{CH}_2)_4-(\text{CF}_2)_7-\text{CF}_3$

CM 2

CRN 25067-59-8
 CMF (C14 H11 N) x
 CCI PMS

CM 3

CRN 1484-13-5
 CMF C14 H11 N



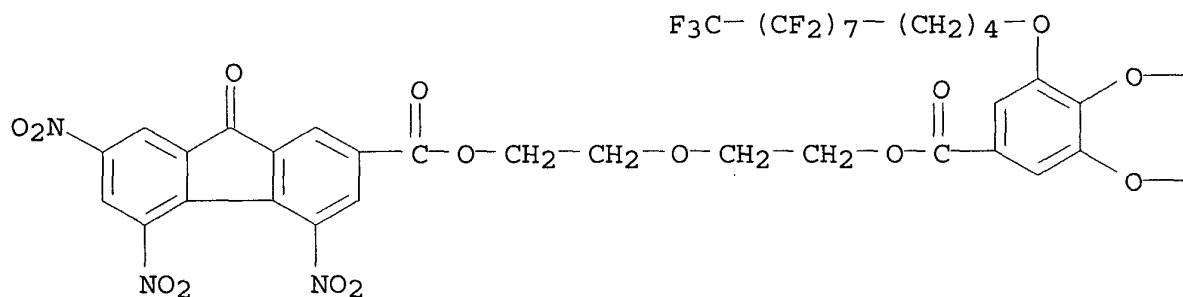
RN 476213-69-1 HCAPLUS
 CN 9H-Fluorene-2-carboxylic acid, 4,5,7-trinitro-9-oxo-,
 2-[2-[[3,4,5-tris[(5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-
 heptadecafluorododecyl)oxy]benzoyl]oxy]ethoxy]ethyl ester, compd.
 with 2-[2-(9H-carbazol-9-yl)ethoxy]ethyl 2-methyl-2-propenoate
 homopolymer (9CI) (CA INDEX NAME)

CM 1

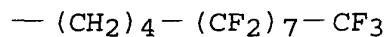
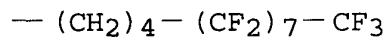
CRN 476213-66-8

CMF C61 H38 F51 N3 O15

PAGE 1-A



PAGE 1-B



CM 2

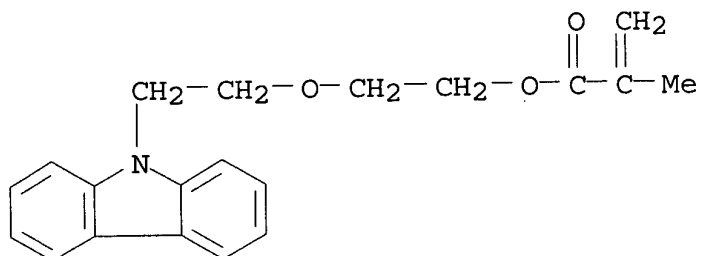
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CMF (C20 H21 N O3) x

CCI PMS

CM 3

CRN 100344-78-3
CMF C20 H21 N O3

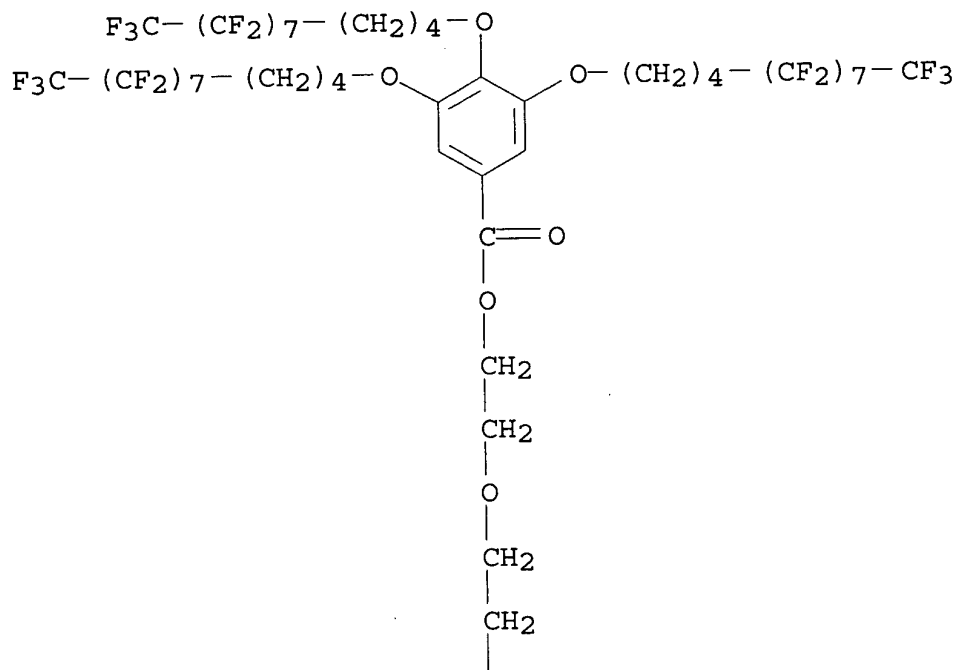


RN 476213-72-6 HCAPLUS
CN 9H-Fluorene-2-carboxylic acid, 4,5,7-trinitro-9-oxo-,
2-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]ethyl ester,
homopolymer, compd. with 2-[2-(9H-carbazol-9-yl)ethoxy]ethyl
3,4,5-tris[(5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-
heptafluorododecyl)oxy]benzoate (9CI) (CA INDEX NAME)

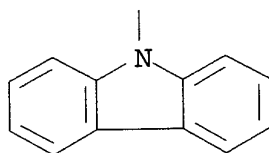
CM 1

CRN 476213-62-4
CMF C59 H42 F51 N O6

PAGE 1-A



PAGE 2-A

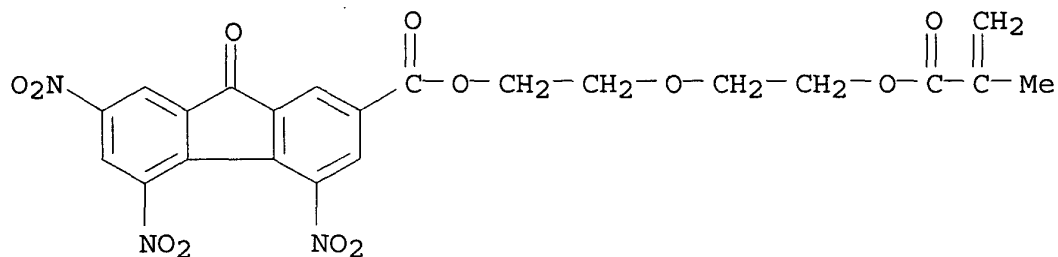


CM 2

CRN 476213-71-5
 CMF (C22 H17 N3 O12) x
 CCI PMS

CM 3

CRN 476213-70-4
 CMF C22 H17 N3 O12



- CC 35-8 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 75, 76
- ST self assembly liq crystal fluorine terminated supramol helical dendrimer; fluorenone deriv fluorine terminated supramol helical dendrimer; pyrene deriv fluorine terminated supramol helical dendrimer; charge carrier mobility liq crystal donor acceptor complex; carbazole deriv fluorine terminated supramol helical dendrimer; **naphthalene** deriv fluorine **terminated** supramol helical dendrimer
- IT 100344-79-4P, Poly[[2-(2-Carbazol-9-ylethoxy)ethyl] methacrylate]
476213-62-4P 476213-63-5P 476213-64-6P 476213-66-8P
476213-71-5P, Poly[2-[2-[2-(2-Methacryloylxyethoxy)ethoxy]ethoxy]ethyl (4,5,7-trinitro-9-fluorenone)-2-carboxylate]
481002-19-1P
(electron diffraction and effect of temp. on charge-carrier mobilities of self-assembling fluorine-terminated liq. cryst. dendrons, polymers, and assocd. electron donor-acceptor complexes)
- IT 476213-67-9P **476213-68-0P** **476213-69-1P**
476213-72-6P
(electron diffraction and effect of temp. on charge-carrier mobilities of self-assembling fluorine-terminated liq. cryst. dendrons, polymers, and assocd. electron donor-acceptor complexes)
- L46 ANSWER 4 OF 13 HCAPLUS COPYRIGHT 2003 ACS
2002:585138 Document No. 138:25251 Influence of the dopant concentration on the morphology of hole-transporting alignment layers based on a polyimide matrix. Meisel, A.; Miteva, T.; Glaser, G.; Scheumann, V.; Neher, D. (Max-Planck-Institute for Polymer Research, Mainz, D-55021, Germany). Polymer, 43(19), 5235-5242 (English) 2002. CODEN: POLMAG. ISSN: 0032-3861. Publisher: Elsevier Science Ltd..
- AB Investigations on hole-transporting alignment layers (HTALs) consisting of a polyimide matrix doped with hole-transporting materials (HTMs) at different concns. by means of low-voltage SEM and at. force microscopy are reported. These layers were recently used as HTALs for liq. cryst. polyfluorenes in polarized light-emitting diodes. For HTM concns. below 15 wt%, phase-sepn. was found to be not significant, and the layer characteristics were

dominated by the stiff polyimide matrix. These layers aligned polyfluorene very well, resulting in polarization ratios in electroluminescence of more than 20. On the contrary, the morphol. was substantially altered at higher dopant concns. Moreover, microgrooves became visible after rubbing, indicating that the degree of imidization of the polyimide matrix was reduced. As a result, increasing the concn. of the HTMs above a certain level resulted in a dramatic decrease of the aligning ability of the HTAL.

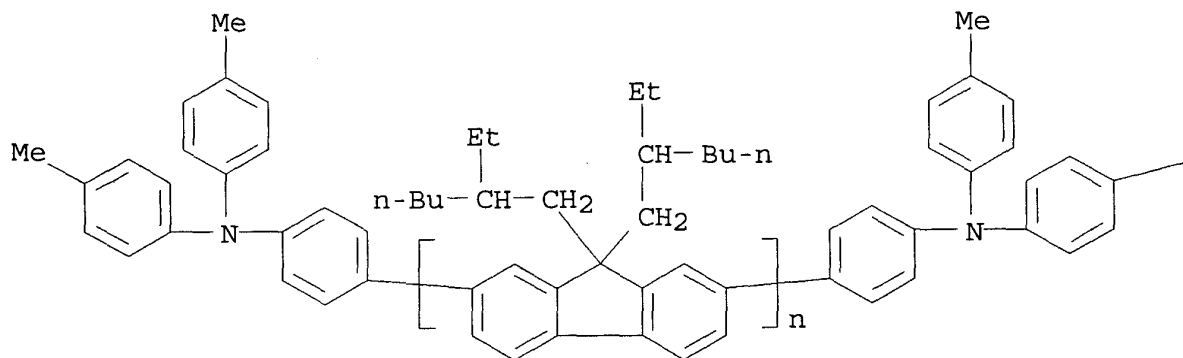
IT 286438-46-8

(liq. cryst.; influence of dopant concn. on morphol. of hole-transporting alignment layers based on polyimide matrix)

RN 286438-46-8 HCAPLUS

CN Poly[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl],
.alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl] - (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

— Me

CC 37-5 (Plastics Manufacture and Processing)

IT 286438-46-8

(liq. cryst.; influence of dopant concn. on morphol. of hole-transporting alignment layers based on polyimide matrix)

L46 ANSWER 5 OF 13 HCAPLUS COPYRIGHT 2003 ACS

2002:373796 Document No. 137:176739 Effects of polymer side-branching in double- and single-layer polyfluorene light-emitting diodes. Nakazawa, Y. K.; Carter, S. A.; Nothofer, H.-G.; Scherf, U.; Lee, V.

Y.; Miller, R. D.; Scott, J. C. (Department of Physics, University of California-Santa Cruz, Santa Cruz, CA, 95064, USA). Applied Physics Letters, 80(20), 3832-3834 (English) 2002. CODEN: APPLAB. ISSN: 0003-6951. Publisher: American Institute of Physics.

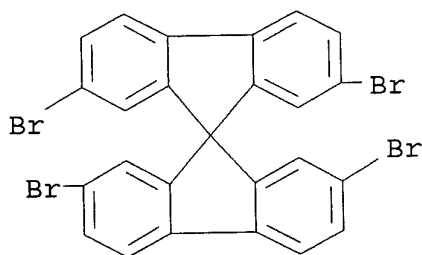
AB The authors study how changes in side-branching in electroluminescent polymers affect the performance of polyfluorene-based light-emitting diodes with and without addnl. hole transport materials. Light emission and device efficiency are detd. more by the position of the exciton recombination zone than by changes in the polymer morphol. induced by side-branching. Consequently, side-branching mainly controls the relative emission between vibrational energy levels and has a minimal effect on polymer charge transport properties. Light outputs of 10000 cd/m2 and device efficiencies of 0.85 and 1.8 cd/A were obtained for single- and double-layer devices, resp.

IT 129868-83-3D, spiralfluorenes-terminated
188201-16-3D, triarylamine-terminated
286438-46-8 370878-34-5 370878-36-7D,
triarylamine-terminated 370878-41-4D,
triarylamine-terminated 370878-44-7
(effects of polymer side-branching in double- and
single-layer polyfluorene light-emitting diodes)

RN 129868-83-3 HCAPLUS
CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrabromo-, homopolymer (9CI)
(CA INDEX NAME)

CM 1

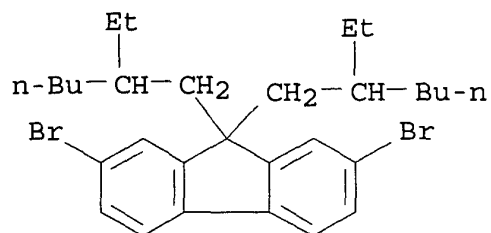
CRN 128055-74-3
CMF C25 H12 Br4



RN 188201-16-3 HCAPLUS
CN 9H-Fluorene, 2,7-dibromo-9,9-bis(2-ethylhexyl)-, homopolymer (9CI)
(CA INDEX NAME)

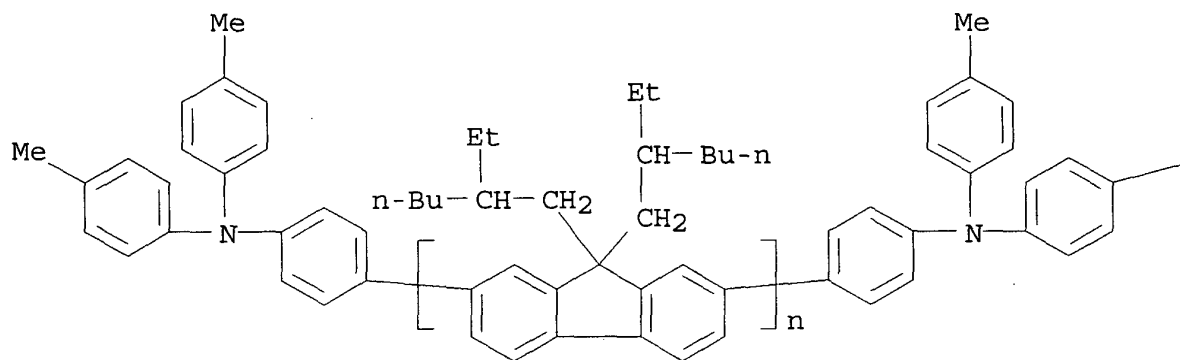
CM 1

CRN 188200-93-3
CMF C29 H40 Br2



RN 286438-46-8 HCAPLUS
 CN Poly[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl],
 .alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl] - (9CI) (CA
 INDEX NAME)

PAGE 1-A

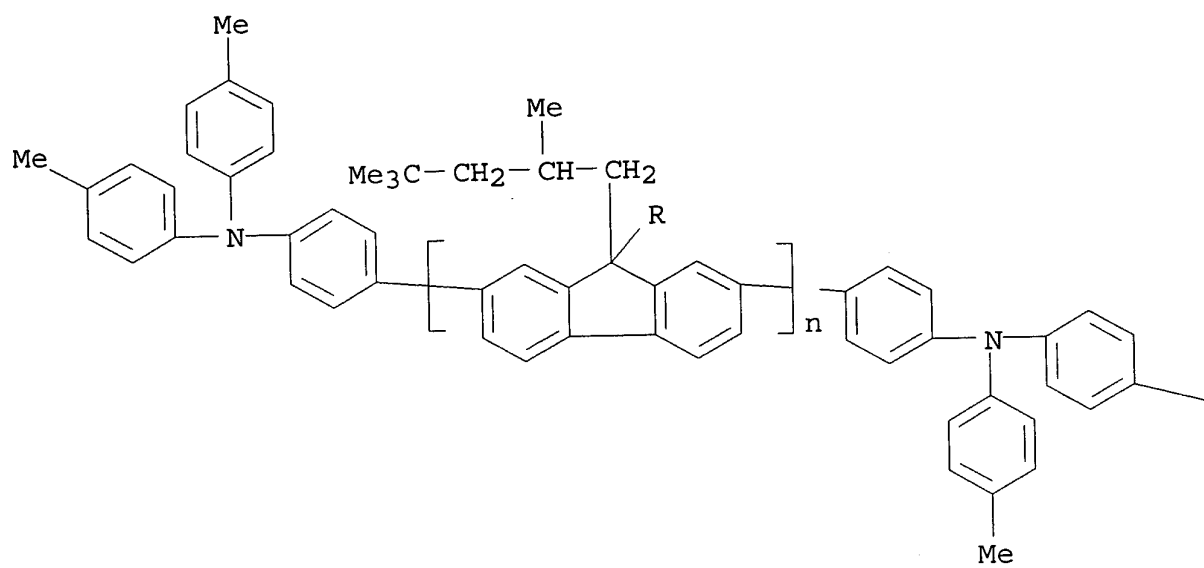


PAGE 1-B

— Me

RN 370878-34-5 HCAPLUS
 CN Poly[9,9-bis(2,4,4-trimethylpentyl)-9H-fluorene-2,7-diyl],
 .alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl] - (9CI) (CA
 INDEX NAME)

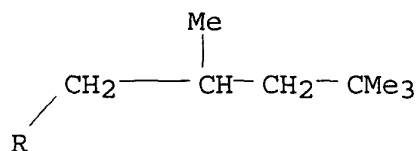
PAGE 1-A



PAGE 1-B

— Me

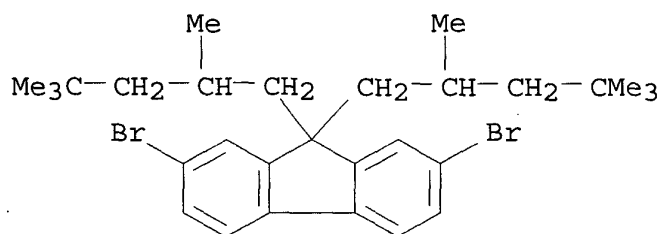
PAGE 2-A



RN 370878-36-7 HCAPLUS
CN 9H-Fluorene, 2,7-dibromo-9,9-bis(2,4,4-trimethylpentyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

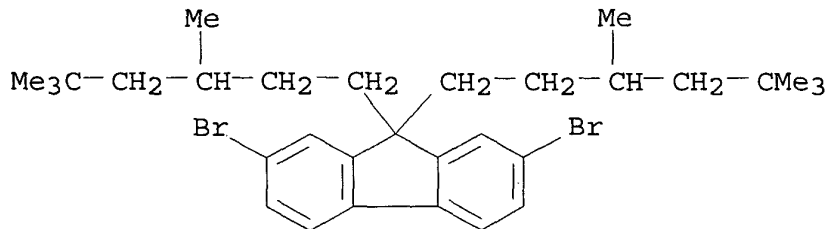
CRN 370878-35-6
CMF C29 H40 Br2



RN 370878-41-4 HCAPLUS
CN 9H-Fluorene, 2,7-dibromo-9,9-bis(3,5,5-trimethylhexyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

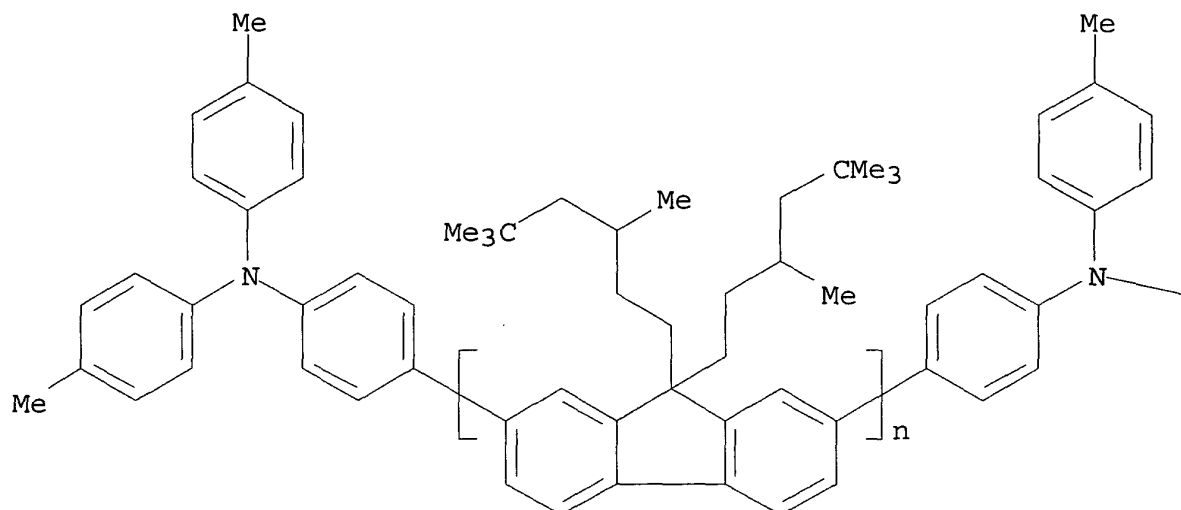
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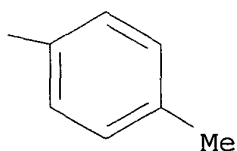
RN 370878-44-7 HCAPLUS
CN Poly[9,9-bis(3,5,5-trimethylhexyl)-9H-fluorene-2,7-diyl],

.alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl] - (9CI) (CA INDEX NAME)

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PAGE 1-B



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 IT 129868-83-3D, spiralfluorenes-terminated
 188201-16-3D, triarylamine-terminated
 286438-46-8 370878-34-5 370878-36-7D,
 triarylamine-terminated 370878-41-4D,
 triarylamine-terminated 370878-44-7

(effects of **polymer** side-branching in double- and single-layer polyfluorene light-emitting diodes)

L46 ANSWER 6 OF 13 HCAPLUS COPYRIGHT 2003 ACS

2002:327925 Document No. 136:342195 Photogenerated nanoporous polymeric network as insulating coatings having reduced dielectric constant. Yates, Stephen F. (Honeywell International Inc., USA). U.S. US 6380270 B1 20020430, 11 pp. (English). CODEN: USXXAM. APPLICATION: US 2000-671022 20000926.

AB The title network, useful for integrated circuits, comprises a crosslinked polymer (A) such as poly(arylene ether), a porogen (B) and a photoinitiator (C), wherein A is formed by Diels-Alder reaction from a linear polymer strand, and C produces a reactive species upon irradiation to react with B in a degradation reaction that degrades at least some of A. Thus, polymg. 35.042 g fluorene bisphenol (a diene component) with 31.83 g 4-fluoro-3'-(4-fluorobenzoyl)tolane (a dienophile) and **end-capping** with 4-fluorobenzophenone gave a polymer strand, which was dissolved in N-methylpyrrolidone, added with .apprx.0.2% Ph3S+SbF6- (C component) and .apprx.2% poly(tert-butoxycarbonyloxystyrene) microsphere (B component), spin-coated on a sulfur wafer with a plurality of integrated circuits and heated up to 400.degree. for curing of A, then irradiated at room temp. for 90 s with 200-260 nm polychromatic UV light and subsequently heated to 160.degree. for degrading of B to give a title network having a Tg >350.degree. and a dielec. const. .apprx.2.9.

IT **272115-24-9DP**, 4-benzoylphenyl-terminated (crosslinked via Diels-Alder reaction; prepn. of photogenerated nanoporous polymeric network as insulating coatings having reduced dielec. const.)

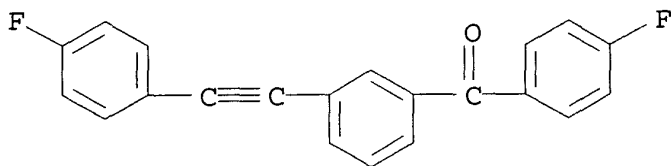
RN 272115-24-9 HCAPLUS

CN Methanone, (4-fluorophenyl) [3-[(4-fluorophenyl)ethynyl]phenyl]-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

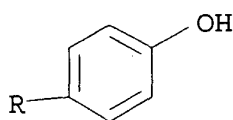
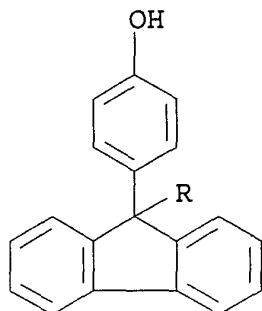
CRN 226884-35-1

CMF C21 H12 F2 O



CM 2

CRN 3236-71-3
CMF C25 H18 O2



- IC ICM C08J009-00
NCL 521050500
CC 42-3 (Coatings, Inks, and Related Products)
Section cross-reference(s): 76
IT **Coating materials**
(light-sensitive; nanoporous polymeric network as insulating coatings having reduced dielec. const.)
IT **Coating materials**
(porous; nanoporous polymeric network as insulating coatings having reduced dielec. const.)
IT **272115-24-9DP, 4-benzoylphenyl-terminated**
(crosslinked via Diels-Alder reaction; prepn. of photogenerated nanoporous polymeric network as insulating coatings having reduced dielec. const.)
- L46 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 2003 ACS
2002:243840 Document No. 137:101057 High optical anisotropy in thin films of polyfluorene and its affect on the outcoupling of light in typical polymer light emitting diode structures. Tammer, M.; Higgins, R. W. T.; Monkman, A. P. (Department of Physics, Organic Electroactive Materials Research Group, University of Durham, Durham, DH1-3LE, UK). Journal of Applied Physics, 91(7), 4010-4013 (English) 2002. CODEN: JAPIAU. ISSN: 0021-8979. Publisher: American Institute of Physics.
- AB The anisotropic optical response of thin films of the conjugated polymer PF2/6am5 (polyfluorene) is studied using spectroscopic ellipsometry. The influence of the highly dispersive and anisotropic character of refractive index, found for the .pi.-.pi.*

transition region, on the outcoupling efficiency of LEDs is calcd. by applying a simple ray optics model. Polymer LEDs are constructed using PF2/6am4 and PtOEP doped PF2/6am4 (0.5, 2, and 4%) as an active layer and their external quantum efficiency (EQE) measured. Electroluminescence spectra of the doped devices are shifted to red wavelengths. The effect of transferring the emission away from high dispersive wavelengths on the outcoupling efficiency is detd. and internal quantum efficiency (IQE) values for all devices are calcd. The increase in IQE by doping with PtOEP of .ltoreq.80% is completely accountable to the higher luminescence quantum yield of the dye. Accounting properly for the anisotropic optic properties of thin spun cast polymer films shows that the simple 2n2 relation between IQE and EQE yields a large overest. of the former.

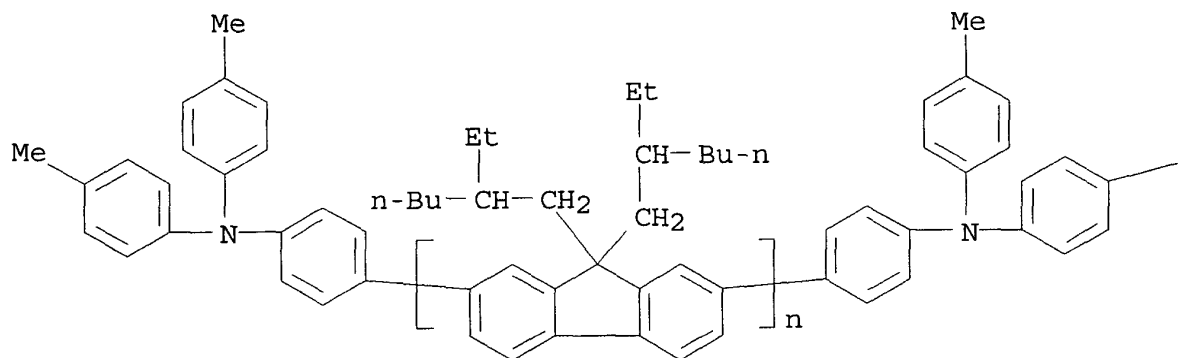
IT 286438-46-8

(high optical anisotropy in films and affect on light outcoupling in typical LEDs of)

RN 286438-46-8 HCAPLUS

CN Poly[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl],
.alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl]- (9CI) (CA
INDEX NAME)

PAGE 1-A



PAGE 1-B

—Me

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38, 76

IT 286438-46-8

(high optical anisotropy in films and affect on light outcoupling in typical LEDs of)

L46 ANSWER 8 OF 13 HCAPLUS COPYRIGHT 2003 ACS

2002:102594 Document No. 136:326093 Photoaddressable alignment layers for fluorescent polymers in polarized electroluminescence devices. Sainova, Dessislava; Zen, Achmad; Nothofer, Heinz-Georg; Asawapirom, Udom; Scherf, Ullrich; Hagen, Rainer; Bieringer, Thomas; Kostromine, Serguei; Neher, Dieter (Institute of Physics, University of Potsdam, Potsdam, D-14469, Germany). Advanced Functional Materials, 12(1), 49-57 (English) 2002. CODEN: AFMDC6. ISSN: 1616-301X. Publisher: Wiley-VCH Verlag GmbH.

AB Liq.-cryst. (LC) polyfluorenes were successfully aligned on photoaddressable polymers (PAPs) based on polyacrylates with mesogen or non-mesogen azobenzene side chains. The degree of mol. alignment in the fluorescent polyfluorene layer on top of an ultra-thin PAP layer is shown to depend strongly on the chem. nature of the PAP. Good alignment with dichroic ratios of more than 10 was achieved with PAPs contg. liq.-cryst. side chains. Patterning with laterally structured alignment was realized in several ways, utilizing reorientation with orthogonally polarized light. Thin PAP layers were evaluated as hole-conducting alignment layers in polymer light-emitting diodes (LEDs) with polarized emission. Hole transport through the alignment layer was facilitated by different concns. of a hole-transporting mol. (HTM) mixed into the PAP layer. These hole-conducting alignment layers retained their aligning ability even at HTM concns. of 20%. LEDs with photometric polarization ratios in emission of up to 14 at a brightness of up to 200 cd/m² and an efficiency of 0.3 cd/A could be realized.

IT 188201-16-3D, 9,9-Bis(2-ethylhexyl)-2,7-dibromofluorene homopolymer, **triarylamine-terminated**
286438-46-8

(polyfluorene liq. crystal alignment on photoaddressable polyacrylate and response of LEDs)

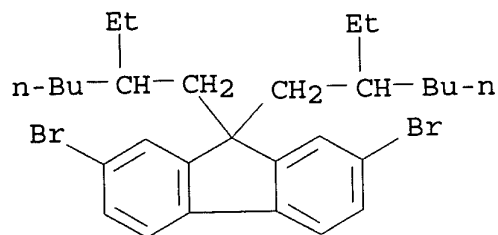
RN 188201-16-3 HCAPLUS

CN 9H-Fluorene, 2,7-dibromo-9,9-bis(2-ethylhexyl)-, homopolymer (9CI)
(CA INDEX NAME)

CM 1

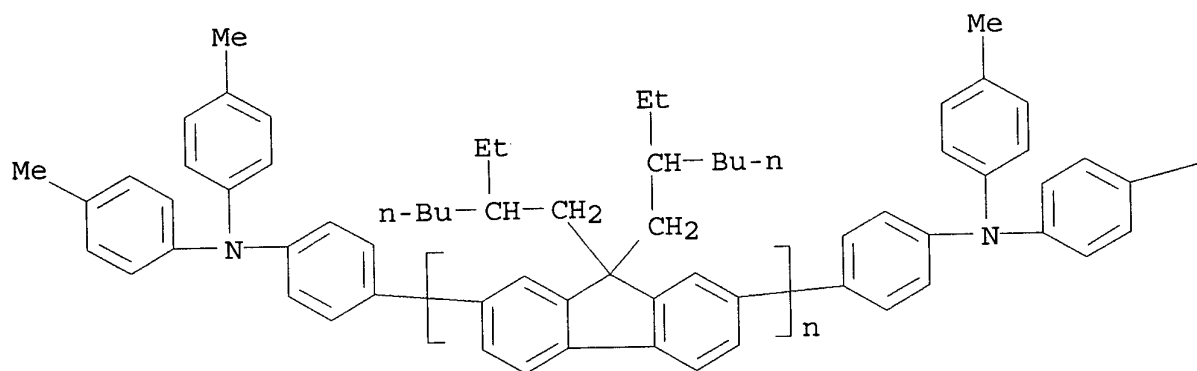
CRN 188200-93-3

CMF C29 H40 Br2



RN 286438-46-8 HCAPLUS
 CN Poly[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl],
 .alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl]- (9CI) (CA
 INDEX NAME)

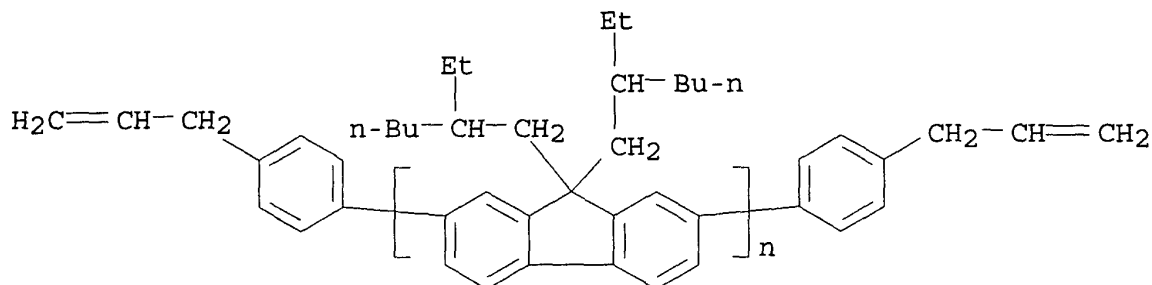
PAGE 1-A



PAGE 1-B

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IT 412753-77-6
 (polyfluorene liq. crystal alignment on photoaddressable
 polyacrylate and response of LEDs)
 RN 412753-77-6 HCAPLUS
 CN Poly[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl],
 .alpha.,.omega.-bis[4-(2-propenyl)phenyl]- (9CI) (CA INDEX NAME)



CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 73

IT 50851-57-5 50926-11-9, ITO 126213-51-2, Poly(3,4-ethylenedioxythiophene) **188201-16-3D**, 9,9-Bis(2-ethylhexyl)-2,7-dibromofluorene homopolymer, **triarylamine-terminated 286438-46-8**

(polyfluorene liq. crystal alignment on photoaddressable polyacrylate and response of LEDs)

IT **412753-77-6**

(polyfluorene liq. crystal alignment on photoaddressable polyacrylate and response of LEDs)

L46 ANSWER 9 OF 13 HCAPLUS COPYRIGHT 2003 ACS

2001:928300 Document No. 137:85799 Energy transfer to porphyrin derivative dopants in polymer light-emitting diodes. Higgins, R. W. T.; Monkman, A. P.; Nothofer, H.-G.; Scherf, U. (Department of Physics, University of Durham, Durham, DH1 3LE, UK). Journal of Applied Physics, 91(1), 99-105 (English) 2002. CODEN: JAPIAU. ISSN: 0021-8979. Publisher: American Institute of Physics.

AB The device physics of bilayer polymer light-emitting diodes that utilize energy transfer to various porphyrin derivs. were investigated. The emissive host, .alpha.,.omega.-bis[N,N-di(4-methylphenyl) aminophenyl]-poly(9,9-bis(2-ethylhexyl)fluoren-2,7-diyl) (PF2/6am4), was doped to a variety of concns. between 0.5 and 4 wt.% with 2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphyrin zinc(II) (ZnOEP), 2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphyrin palladium(II) (PdOEP), and 2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphyrin platinum(II) (PtOEP). The electroluminescent devices showed a max. external quantum efficiency (EQE) of 1.19%, 0.22%, 1.08%, and 2.75% for undoped APFO, PF2/6am4:ZnOEP, PF2/6am4:PdOEP, and PF2/6am4:PtOEP blends, resp. This variation in performance of the blends was attributed to be a product of both the luminescence quantum yield of the dopant mols., which was taken from the literature as 0.065, 0.2, and 0.5 for ZnOEP, PdOEP, and PtOEP, resp., and the dopant excited state lifetime. It was obsd. that at high brightness the EQE of the doped devices falls below that of the undoped device and we attribute this high-end falloff in performance to the excited state lifetimes of the dopant mols., which det. at which c.d. devices exhibit peak efficiency. Past this peak in

efficiency, it is proposed that satn. of the dopant sites is the major factor in detrimental device performance, which has wide reaching consequences for any future design that utilizes energy transfer of dopant mols.

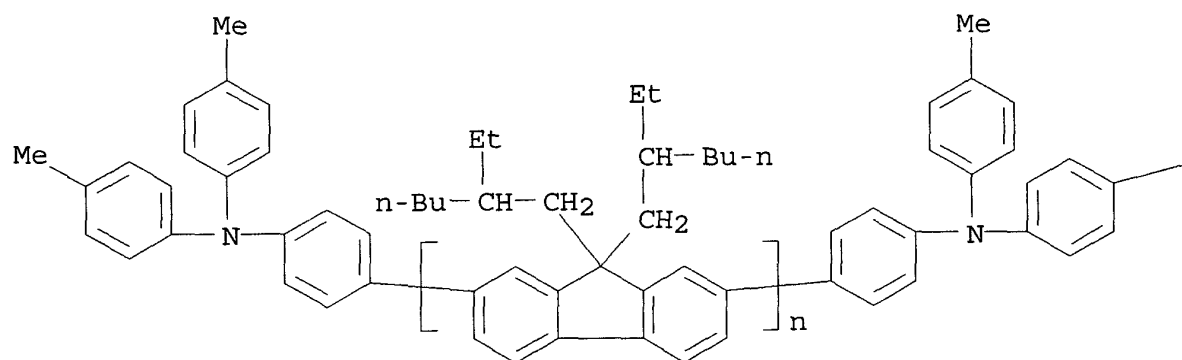
IT 286438-46-8

(energy transfer to porphyrin deriv. dopants in polymer light-emitting diodes)

RN 286438-46-8 HCAPLUS

CN Poly[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl],
.alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl]- (9CI) (CA
INDEX NAME)

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— Me

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 73

IT 9003-53-6D, Polystyrene, sulfonated acid deriv. 17632-18-7, Zinc octaethylporphyrin 24804-00-0, Palladium octaethylporphyrin 31248-39-2, Platinum octaethylporphyrin 50926-11-9, Indium tin oxide 126213-51-2, Poly(3,4-ethylenedioxythiophene)

286438-46-8

(energy transfer to porphyrin deriv. dopants in polymer light-emitting diodes)

polyfluorenes, films and devices based thereon. Yasuda, Akio; Knoll, Wolfgang; Meisel, Andreas; Miteva, Tzenka; Neher, Dieter; Nothofer, Heinz-Georg; Scherf, Ullrich (Sony International (Europe) GmbH, Germany; Max-Planck-Gesellschaft zur Foerderung der Wissenschaften E.V.). Eur. Pat. Appl. EP 1149827 A1 20011031, 29 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-108877 20000426.

AB Polyfluorenes are described which are **end-capped** with at least one charge-transporting moiety. The polyfluorenes may exhibit liq. crystal properties. Films, FETs, photovoltaic elements, light-emitting devices, and sensors incorporating the polyfluorenes are also described.

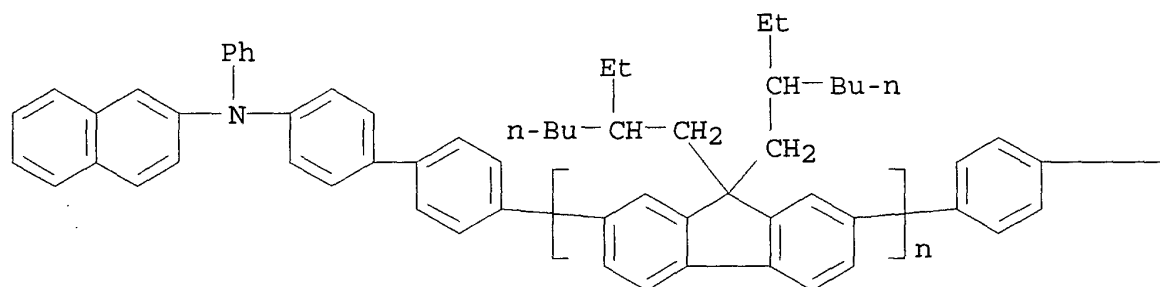
IT 370878-37-8 370878-38-9 370878-39-0
370878-40-3 370878-41-4D, triarylamine-terminated 370878-42-5 370878-43-6

(charge-transporting moiety **end-capped** polyfluorenes and films and devices using them)

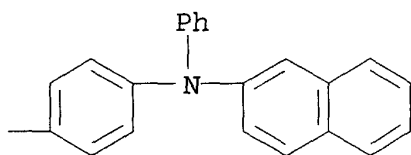
RN 370878-37-8 HCAPLUS

CN Poly[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl], .alpha.,.omega.-bis[4'-(2-naphthalenylphenylamino)[1,1'-biphenyl]-4-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



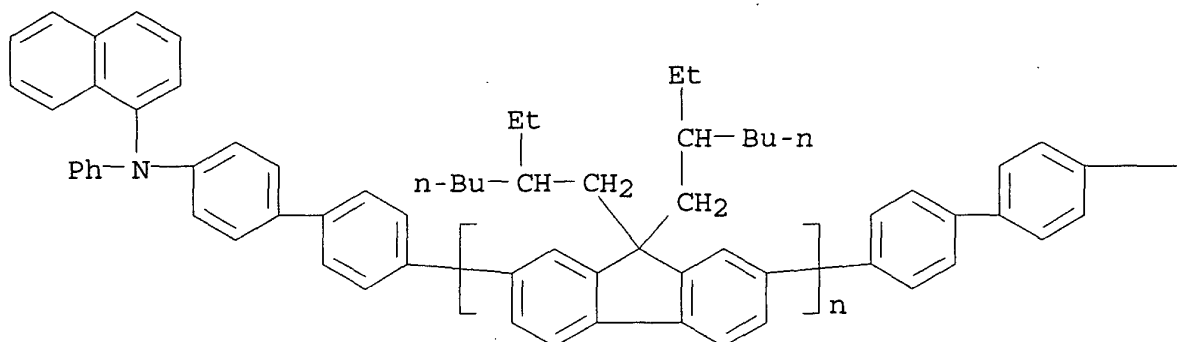
PAGE 1-B



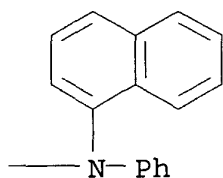
RN 370878-38-9 HCAPLUS

CN Poly[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl], .alpha.,.omega.-bis[4'-(1-naphthalenylphenylamino)[1,1'-biphenyl]-4-yl]- (9CI) (CA INDEX NAME)

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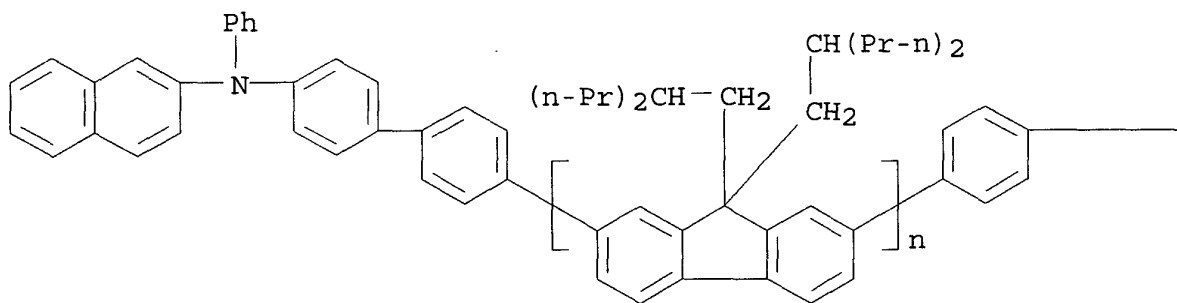


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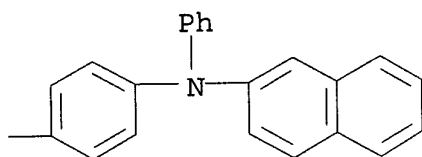


RN 370878-39-0 HCAPLUS
 CN Poly[9,9-bis(2-propylpentyl)-9H-fluorene-2,7-diyl],
 .alpha.,.omega.-bis[4'-(2-naphthalenylphenylamino)[1,1'-biphenyl]-4-
 yl]-(9CI) (CA INDEX NAME)

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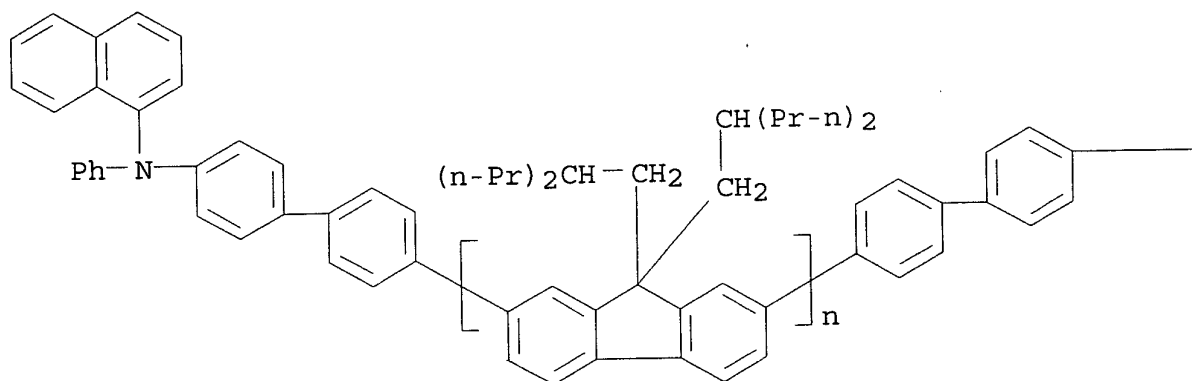


PAGE 1-B

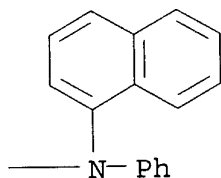


RN 370878-40-3 HCAPLUS
 CN Poly[9,9-bis(2-propylpentyl)-9H-fluorene-2,7-diyl],
 .alpha.,.omega.-bis[4'-(1-naphthalenylphenylamino)[1,1'-biphenyl]-4-
 yl]- (9CI) (CA INDEX NAME)

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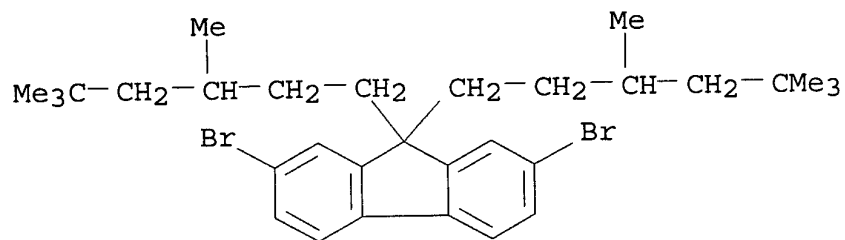
PAGE 1-B



RN 370878-41-4 HCAPLUS
 CN 9H-Fluorene, 2,7-dibromo-9,9-bis(3,5,5-trimethylhexyl)-, homopolymer
 (9CI) (CA INDEX NAME)

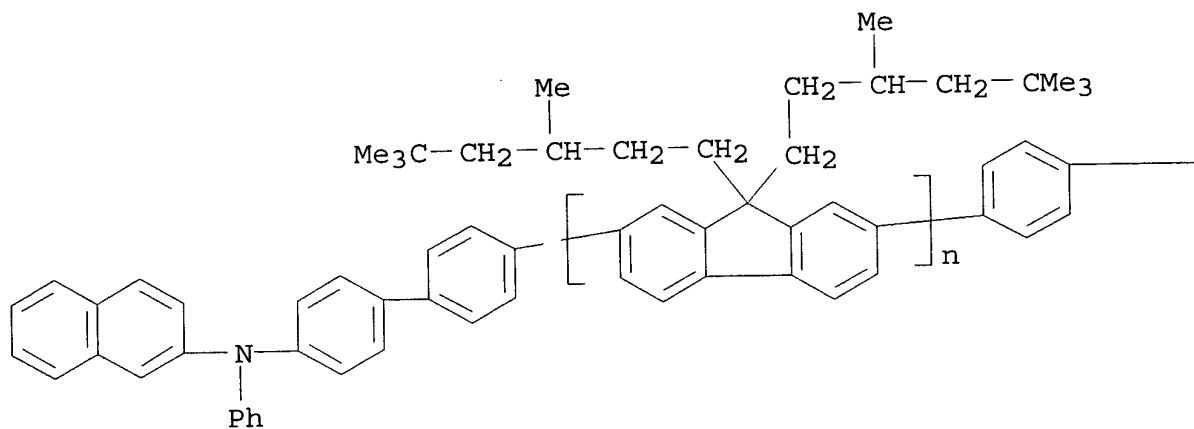
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CRN 367524-10-5
 CMF C31 H44 Br2

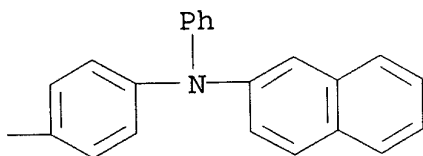


RN 370878-42-5 HCAPLUS
 CN Poly[9,9-bis(3,5,5-trimethylhexyl)-9H-fluorene-2,7-diyl],
 .alpha.,.omega.-bis[4'-(2-naphthalenylphenylamino)[1,1'-biphenyl]-4-
 yl]- (9CI) (CA INDEX NAME)

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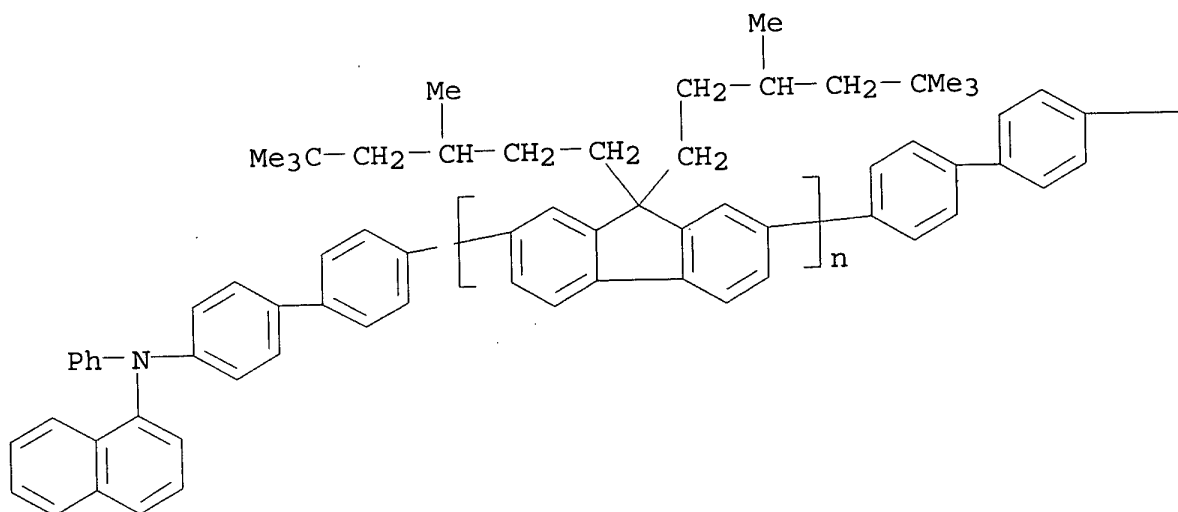


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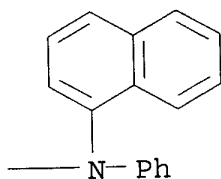


RN 370878-43-6 HCAPLUS
 CN Poly[9,9-bis(3,5,5-trimethylhexyl)-9H-fluorene-2,7-diyl],
 .alpha.,.omega.-bis[4'-(1-naphthalenylphenylamino)[1,1'-biphenyl]-4-
 yl]- (9CI) (CA INDEX NAME)

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IT 188201-16-3DP, triarylamine-terminated
 286438-46-8P 286438-47-9P 370878-33-4DP,
 triarylamine-terminated 370878-34-5P
 370878-36-7DP, triarylamine-terminated
 370878-44-7P
 (charge-transporting moiety end-capped
 polyfluorenes and films and devices using them)

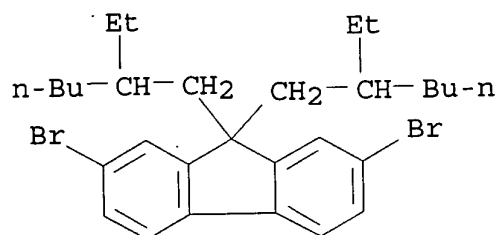
RN 188201-16-3 HCAPLUS

CN 9H-Fluorene, 2,7-dibromo-9,9-bis(2-ethylhexyl)-, homopolymer (9CI)
 (CA INDEX NAME)

CM 1

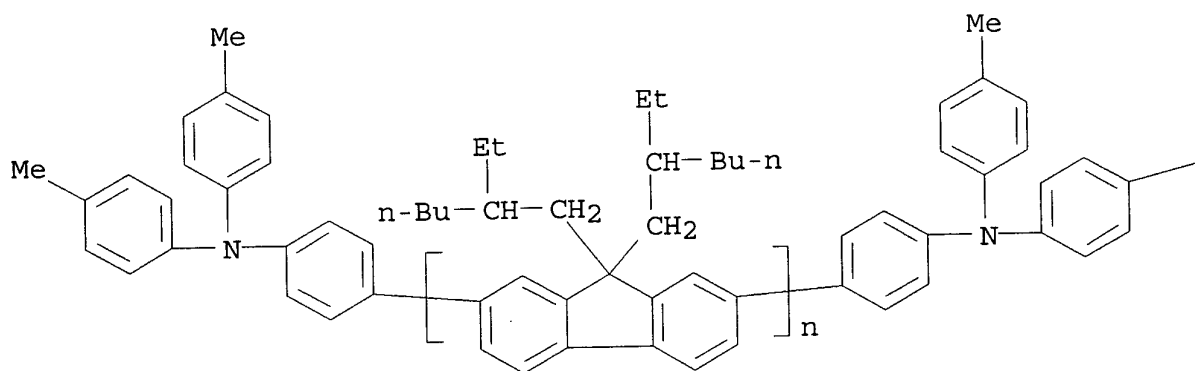
CRN 188200-93-3

CMF C29 H40 Br2



RN 286438-46-8 HCAPLUS
 CN Poly[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl],
 .alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl] - (9CI) (CA
 INDEX NAME)

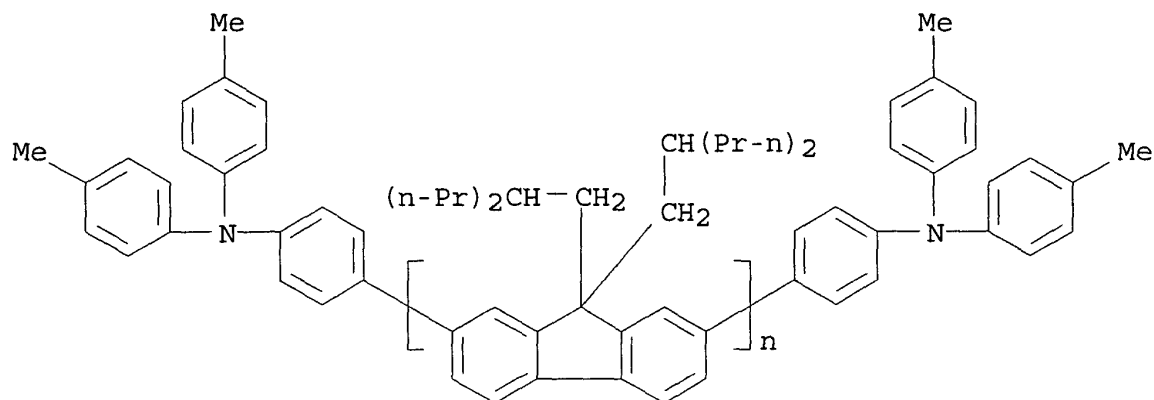
PAGE 1-A



PAGE 1-B

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RN 286438-47-9 HCAPLUS
 CN Poly[9,9-bis(2-propylpentyl)-9H-fluorene-2,7-diyl],
 .alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl] - (9CI) (CA
 INDEX NAME)



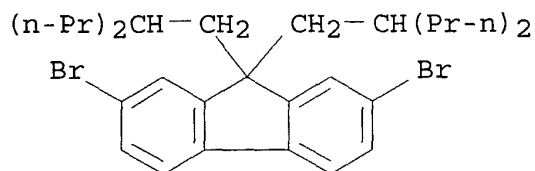
RN 370878-33-4 HCAPLUS

CN 9H-Fluorene, 2,7-dibromo-9,9-bis(2-propylpentyl)-, homopolymer (9CI)
(CA INDEX NAME)

CM 1

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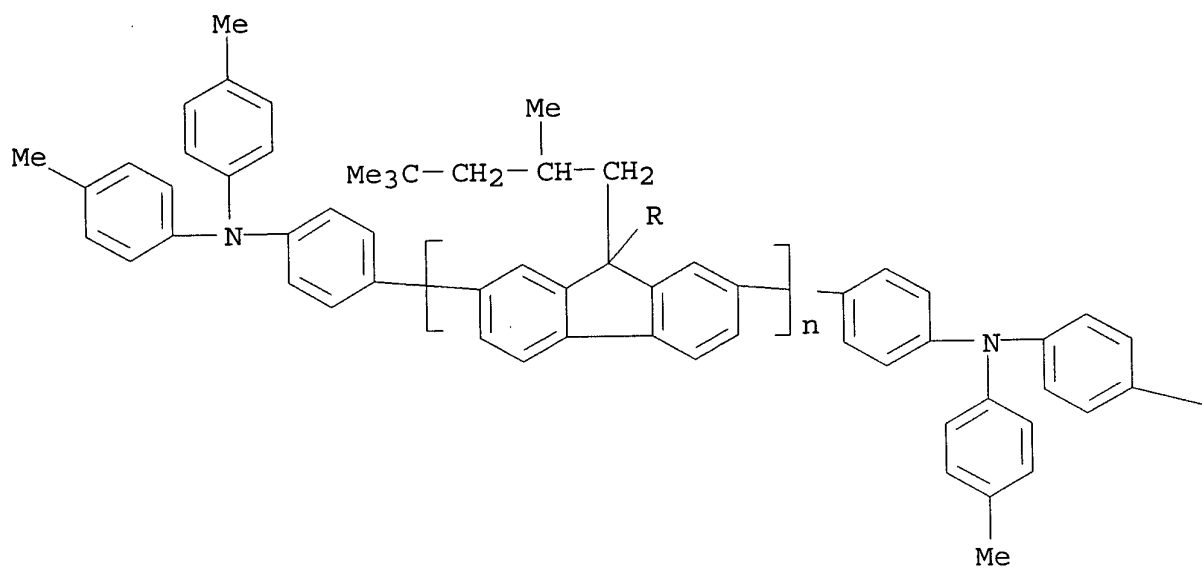
CMF C29 H40 Br2



RN 370878-34-5 HCAPLUS

CN Poly[9,9-bis(2,4,4-trimethylpentyl)-9H-fluorene-2,7-diyl],
.alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl]- (9CI) (CA
INDEX NAME)

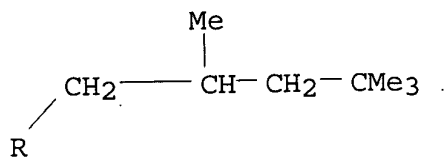
PAGE 1-A



PAGE 1-B

— Me

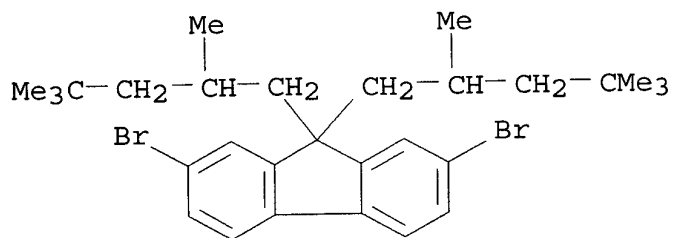
PAGE 2-A



RN 370878-36-7 HCAPLUS
CN 9H-Fluorene, 2,7-dibromo-9,9-bis(2,4,4-trimethylpentyl)-,
homopolymer (9CI) (CA INDEX NAME)

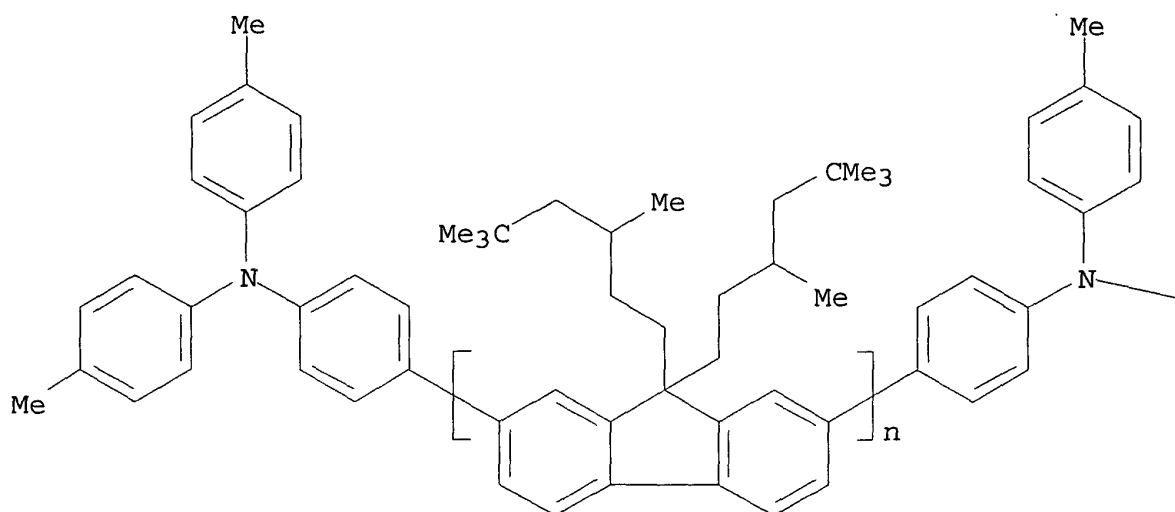
CM 1

CRN 370878-35-6
CMF C29 H40 Br2

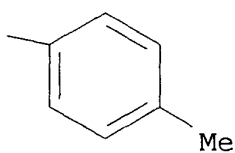


RN 370878-44-7 HCAPLUS
CN Poly[9,9-bis(3,5,5-trimethylhexyl)-9H-fluorene-2,7-diyl],
.alpha.,.omega.-bis[4-[bis(4-methylphenyl)aminolphenyl]- (9CI) (CA
INDEX NAME)

PAGE 1-A



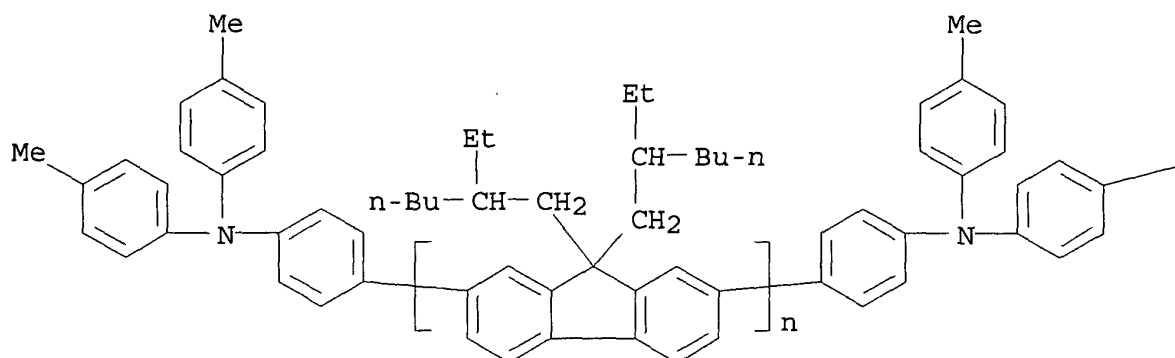
PAGE 1-B



IC ICM C07C211-55
ICS H01L051-30
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 52, 73, 74, 75, 76
ST charge transporting moiety **end capped**
polyfluorene; film **end capped** polyfluorene; FET
end capped polyfluorene; photovoltaic element
end capped polyfluorene; light emitting device
end capped polyfluorene; sensor **end**
capped polyfluorene

- IT Electroluminescent devices
Field effect transistors
Films
Liquid crystals, polymeric
Photoelectric devices
Sensors
(charge-transporting moiety **end-capped**
polyfluorenes and films and devices using them)
- IT Phosphors
(electroluminescent; charge-transporting moiety **end-capped** polyfluorenes and films and devices using them)
- IT 370878-37-8 370878-38-9 370878-39-0
370878-40-3 370878-41-4D, triarylamine-
terminated 370878-42-5 370878-43-6
(charge-transporting moiety **end-capped**
polyfluorenes and films and devices using them)
- IT 188201-16-3DP, triarylamine-terminated
286438-46-8P 286438-47-9P 370878-33-4DP,
triarylamine-terminated 370878-34-5P
370878-36-7DP, triarylamine-terminated
370878-44-7P
(charge-transporting moiety **end-capped**
polyfluorenes and films and devices using them)
- L46 ANSWER 11 OF 13 HCAPLUS COPYRIGHT 2003 ACS
2001:567887 Document No. 135:324580 Effects of singlet and triplet
energy transfer to molecular dopants in polymer light-emitting
diodes and their usefulness in chromaticity tuning. Higgins, R. W.
T.; Monkman, A. P.; Nothofer, H.-G.; Scherf, U. (Department of
Physics, University of Durham, Durham, UK). Applied Physics
Letters, 79(6), 857-859 (English) 2001. CODEN: APPLAB. ISSN:
0003-6951. Publisher: American Institute of Physics.
- AB Efficient, white emission with Commission Internationale de
L'Eclairage coordinates of 0.33, 0.42 is demonstrated from polymer
light-emitting diodes operating at high brightness. An amino
end-capped polyfluorene deriv. doped with rubrene was used as the
active layer, in combination with a poly(3,4-ethylenedioxythiophene)
hole transport layer. Luminescence reaches 14950 Cd/m2 at a c.d. of
150 mA/cm2, and the max. external quantum efficiency measured
1.05[percent] for a bias voltage of 9.0 V. We observe a fall in
external quantum efficiency relative to the undoped device, which we
ascribe to an increased singlet-triplet annihilation rate at the
dopant sites.
- IT 286438-46-8
(active layer contg.; effects of singlet and triplet energy
transfer to mol. dopants in polymer light-emitting diodes and
usefulness in chromaticity tuning)
- RN 286438-46-8 HCAPLUS
CN Poly[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl],
.alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl]- (9CI) (CA
INDEX NAME)

PAGE 1-A



PAGE 1-B

— Me

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38, 76

IT **286438-46-8**

(active layer contg.; effects of singlet and triplet energy transfer to mol. dopants in polymer light-emitting diodes and usefulness in chromaticity tuning)

L46 ANSWER 12 OF 13 HCAPLUS COPYRIGHT 2003 ACS

2000:824327 Document No. 134:5280 Composition of and method for making high performance imide resins for infusion and transfer molding processes. Connell, John; Smith, Joseph; Hergenrother, Paul (United States National Aeronautics and Space Administration, USA). PCT Int. Appl. WO 2000069948 A1 20001123, 136 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US13669 20000518. PRIORITY: US 1999-PV135334 19990518; US 2000-575826 20000518.

AB A low melt viscosity imide resin that is processable by resin

transfer molding or resin infusion is prepd. by combining components comprising: (A) a diamine combination comprising: (i) greater than about fifty molar percent of a flexible diamine (ii) at least a second diamine (B) at least one arom. dianhydride; and (C) an **endcapping** agent having a latent reactive group wherein the components have a low stoichiometric ratio of dianhydride to diamine combination. These materials are particularly useful for the fabrication of structural composite components for aerospace applications. The method for making high performance resins for RTM and RI processes is a multi-faceted approach. It involves the prepn. of a mixt. of products from a combination of arom. diamines and arom. dianhydrides at relatively low calcd. mol. wts. (i.e. high stoichiometric offsets) and **endcapping** with latent reactive groups. The combination of these monomers results in a mixt. of products, in the imide form, that exhibits a stable melt viscosity of less than approx. 60P below approx. 300.degree..

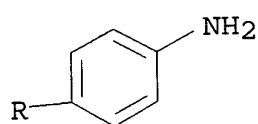
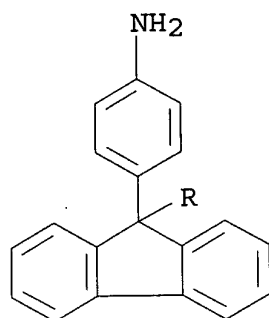
IT 308385-11-7DP, reaction products with 4-phenylethynylphthalic anhydride 308385-16-2DP, reaction products with 4-phenylethynylphthalic anhydride 308385-19-5DP, reaction products with 4-phenylethynylphthalic anhydride
(compn. of and method for making high performance imide resins for infusion and transfer molding processes)

RN 308385-11-7 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] and 3,3'-[1,3-phenylenebis(oxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

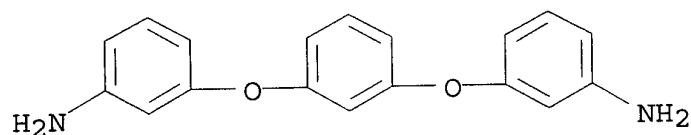
CRN 15499-84-0
CMF C25 H20 N2



CM 2

CRN 10526-07-5

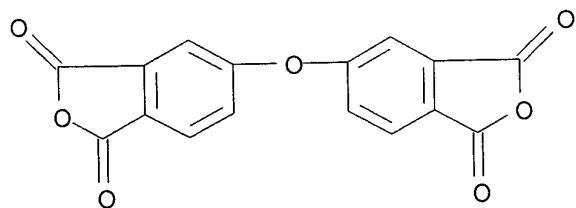
CMF C18 H16 N2 O2



CM 3

CRN 1823-59-2

CMF C16 H6 O7



RN 308385-16-2 HCAPLUS

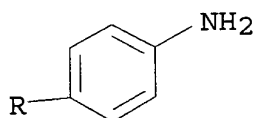
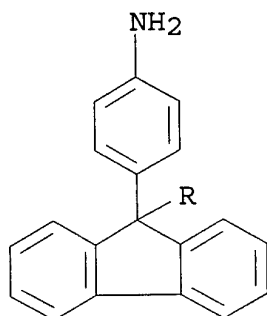
CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with

4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] and 3,3'-[1,3-phenylenebis(oxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 15499-84-0

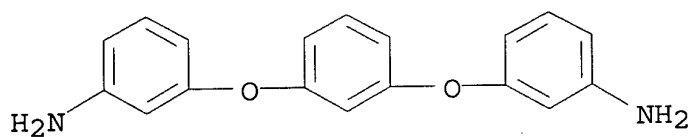
CMF C25 H20 N2



CM 2

CRN 10526-07-5

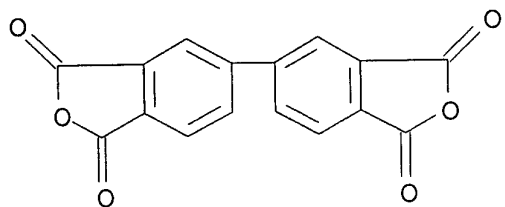
CMF C18 H16 N2 O2



CM 3

CRN 2420-87-3

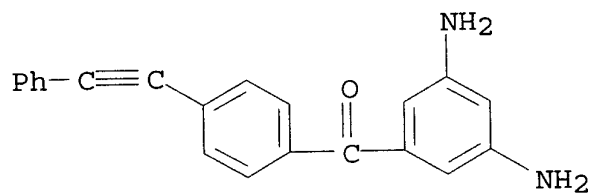
CMF C16 H6 O6



RN 308385-19-5 HCAPLUS
CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with
(3,5-diaminophenyl) [4-(phenylethynyl)phenyl]methanone,
4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] and 3,3'-[1,3-
phenylenebis(oxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

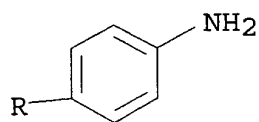
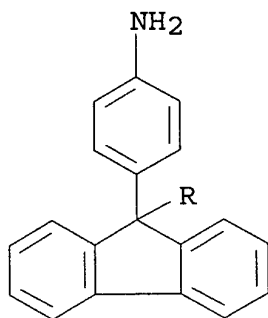
CM 1

CRN 188479-24-5
CMF C21 H16 N2 O



CM 2

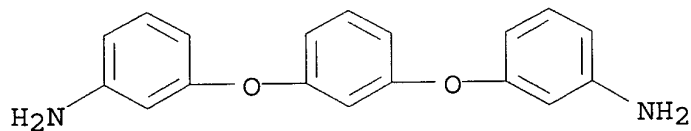
CRN 15499-84-0
CMF C25 H20 N2



CM 3

CRN 10526-07-5

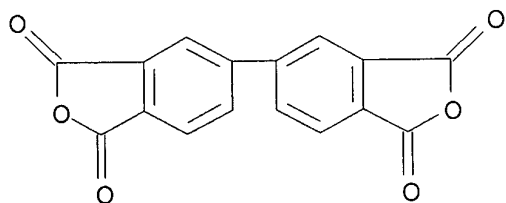
CMF C18 H16 N2 O2



CM 4

CRN 2420-87-3

CMF C16 H6 O6



IC ICM C08G073-10
ICS C09J179-08; C09D179-08

CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 42

IT Adhesives

Coating materials

(compn. of and method for making high performance imide resins for infusion and transfer molding processes)

IT 85-44-9DP, Phthalic anhydride, reaction products with polyimides 72356-03-7DP, 1,3-Bis(3-aminophenoxy)benzene-3,3',4,4'-biphenyltetracarboxylic dianhydride copolymer, reaction products with 4-phenylethynylphthalic anhydride 119389-05-8DP, 4-Phenylethynylphthalic anhydride, reaction products with polyimides 159507-08-1DP, 1,3-Bis(3-aminophenoxy)benzene-3,3',4,4'-biphenyltetracarboxylic dianhydride-3,4'-oxydianiline copolymer, reaction products with 4-phenylethynylphthalic anhydride 188479-28-9DP, reaction products with 4-phenylethynylphthalic anhydride 292624-31-8DP, reaction products with 4-phenylethynylphthalic anhydride 302328-95-6DP, 1,3-Bis(3-aminophenoxy)-benzene-3,4'-oxydianiline-pyromellitic dianhydride copolymer, reaction products with 4-phenylethynylphthalic anhydride 308385-09-3DP, reaction products with 4-phenylethynylphthalic anhydride 308385-10-6DP, reaction products with 4-phenylethynylphthalic anhydride 308385-11-7DP, reaction products with 4-phenylethynylphthalic anhydride 308385-12-8DP, reaction products with 4-phenylethynylphthalic anhydride 308385-13-9DP, reaction products with 4-phenylethynylphthalic anhydride 308385-14-0DP, reaction products with 4-phenylethynylphthalic anhydride 308385-15-1DP, reaction products with 4-phenylethynylphthalic anhydride 308385-16-2DP, reaction products with 4-phenylethynylphthalic anhydride 308385-17-3DP, reaction products with 4-phenylethynylphthalic anhydride 308385-18-4DP, reaction products with 4-phenylethynylphthalic anhydride 308385-19-5DP, reaction products with 4-phenylethynylphthalic anhydride 308385-20-8DP, reaction products with 4-phenylethynylphthalic anhydride 308385-21-9DP, reaction products with 4-phenylethynylphthalic anhydride 308385-22-0DP, reaction products with 4-phenylethynylphthalic anhydride 308385-23-1P

(compn. of and method for making high performance imide resins for infusion and transfer molding processes)

L46 ANSWER 13 OF 13 HCAPLUS COPYRIGHT 2003 ACS

2000:420219 Document No. 133:141917 Liquid crystalline polyfluorenes for blue polarized electroluminescence. Nothofer, Heinz-Georg; Meisel, Andreas; Miteva, Tzenka; Neher, Dieter; Forster, Michael; Oda, Masao; Lieser, Gunter; Sainova, Dessislava; Yasuda, Akio; Lupo, Donald; Knoll, Wolfgang; Scherf, Ullrich (Max-Planck-Institut fur Polymerforschung, Mainz, D-55128, Germany). Macromolecular Symposia, 154(Polymers in Display Applications), 139-148 (English) 2000. CODEN: MSYMEC. ISSN: 1022-1360. Publisher: Wiley-VCH Verlag GmbH.

AB 9,9-Dialkyl-poly(fluorene-2,7-diyl)s contg. linear and branched

alkyl substituents with a $M_n < 200000$ g/mol were synthesized. Some of the polymers were **end capped** with a suitable hole transport functionality, such as a triphenylamine deriv., to improve their charge transport properties and to control the mol. wt. The thermal alignment of these novel polymers on a rubbed polyimide layer led to highly anisotropic film formation with dichroic ratios (absorption parallel and perpendicular to the rubbing direction) of up to 26 in absorption and 21 in emission.

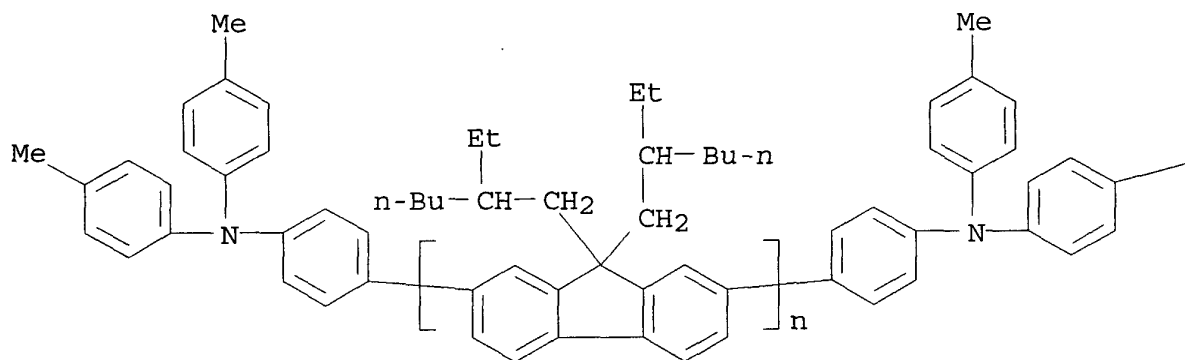
IT 286438-46-8P 286438-47-9P

(blue polarized electroluminescence of liq. cryst. polyfluorene)

RN 286438-46-8 HCAPLUS

CN Poly[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl],
.alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl] - (9CI) (CA
INDEX NAME)

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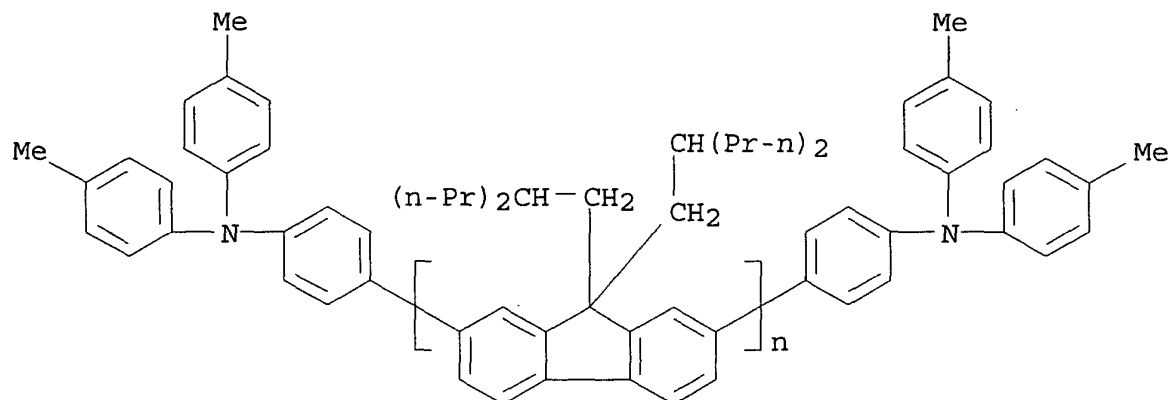


PAGE 1-B

— Me

RN 286438-47-9 HCAPLUS

CN Poly[9,9-bis(2-propylpentyl)-9H-fluorene-2,7-diyl],
.alpha.,.omega.-bis[4-[bis(4-methylphenyl)amino]phenyl] - (9CI) (CA
INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 36, 38, 75, 76
 IT 188201-14-1P 188201-16-3P **286438-46-8P**
286438-47-9P 286438-48-0P
 (blue polarized electroluminescence of liq. cryst. polyfluorene)

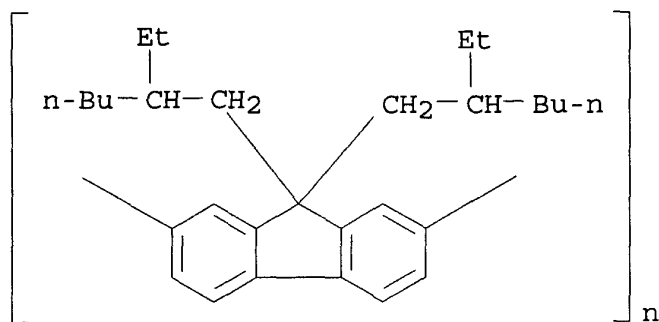
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L47 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2003 ACS
 2001:493974 Document No. 135:211396 Conjugated polyfluorene/
polyaniline block copolymers. Schmitt, Cristopher;
 Nothofer, Heinz-Georg; Falcou, Aurelie; Scherf, Ullrich
 (Max-Planck-Institut fur Polymerforschung, Mainz, D-55128, Germany).
 Macromolecular Rapid Communications, 22(8), 624-628 (English) 2001.
 CODEN: MRCOE3. ISSN: 1022-1336. Publisher: Wiley-VCH Verlag GmbH.
 AB Sol. poly(9,9-(2-ethylhexyl)fluorene) (PF)/poly(2-
undecylaniline) (PANI) block copolymers were synthesized
 following a three-step synthetic procedure. The reaction sequence
 involves aryl-aryl Suzuki coupling of alkylated dibromofluorenes and
 fluorene diboronic esters in the presence of 4-nitrobromobenzene as
 monofunctional **end-capping** reagent, followed by
 redn. of nitrophenyl to aminophenyl with H₂/Pd/C, and subsequent
 oxidative condensation with 2-**undecylaniline**. The colored
 conjugated-conjugated PF/PANI block copolymers were characterized by
 GPC, NMR and UV-Vis spectroscopy. The synthetic procedure is simple
 and straightforward and enables the synthesis of gram amts., because
 sepn. from the PANI homopolymer (formed as a side-product in the
 final reaction step) is possible by simply extg. with toluene. The
 thermal treatment of PF/PANI block copolymers leads to a
 nanoscopically structured morphol. of the film indicating phase
 sepn. in the meso length regime (ca. 100 nm).
 IT **188201-14-1DP**, 4-nitrophenyl **end-capped**,
 amine redn. products **358374-50-2DP**, 4-nitrophenyl

end-capped, amine redn. products(Suzuki coupling in sequence for prepn. of colored conjugated polyfluorene/**polyaniline** block copolymers)

RN 188201-14-1 HCAPLUS

CN Poly[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl] (9CI) (CA INDEX NAME)



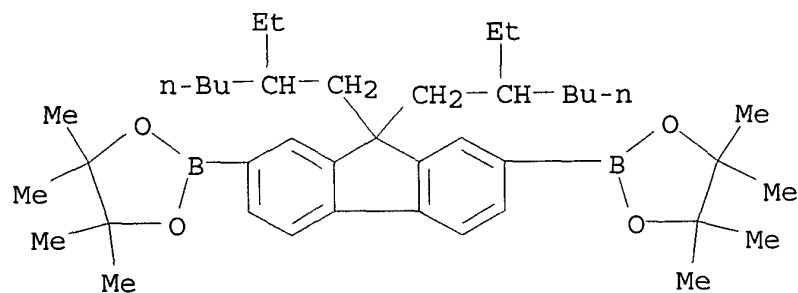
RN 358374-50-2 HCAPLUS

CN 1,3,2-Dioxaborolane, 2,2'-[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl]bis[4,4,5,5-tetramethyl-, polymer with 2,7-dibromo-9,9-bis(2-ethylhexyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 357219-41-1

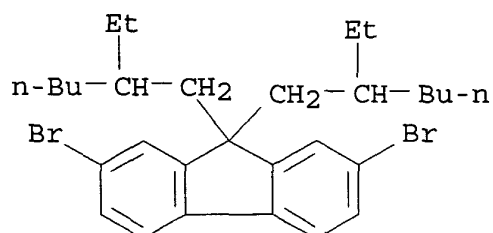
CMF C41 H64 B2 O4



CM 2

CRN 188200-93-3

CMF C29 H40 Br2



- CC 35-7 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73, 76
- ST ethylhexylfluorene **undecylaniline** block copolymer
synthesis reaction sequence; **polyaniline** polyfluorene
block conjugated polymer Suzuki coupling; colored conjugated polymer
fluorene **aniline** block morphol
- IT Conducting polymers
Suzuki coupling reaction
(Suzuki coupling in sequence for prepn. of colored conjugated
polyfluorene/**polyaniline** block copolymers)
- IT **Polyanilines**
(Suzuki coupling in sequence for prepn. of colored conjugated
polyfluorene/**polyaniline** block copolymers)
- IT Polymerization
(Suzuki coupling; Suzuki coupling in sequence for prepn. of
colored conjugated polyfluorene/**polyaniline** block
copolymers)
- IT Polymers, preparation
(conjugated, block; Suzuki coupling in sequence for prepn. of
colored conjugated polyfluorene/**polyaniline** block
copolymers)
- IT Polymer morphology
(phase; Suzuki coupling in sequence for prepn. of colored
conjugated polyfluorene/**polyaniline** block copolymers)
- IT 25233-30-1P, **Polyaniline**
(Suzuki coupling in sequence for prepn. of colored conjugated
polyfluorene/**polyaniline** block copolymers)
- IT 358374-51-3P
(Suzuki coupling in sequence for prepn. of colored conjugated
polyfluorene/**polyaniline** block copolymers)
- IT 188200-93-3 357219-41-1
(Suzuki coupling in sequence for prepn. of colored conjugated
polyfluorene/**polyaniline** block copolymers)
- IT **188201-14-1DP**, 4-nitrophenyl **end-capped**,
amine redn. products **358374-50-2DP**, 4-nitrophenyl
end-capped, amine redn. products
(Suzuki coupling in sequence for prepn. of colored conjugated
polyfluorene/**polyaniline** block copolymers)
- IT 14221-01-3, Tetrakis(triphenylphosphine)palladium(0)
(coupling polymn. catalyst; Suzuki coupling in sequence for
prepn. of colored conjugated polyfluorene/**polyaniline**

block copolymers)

IT 586-78-7, 4-Nitrobromobenzene

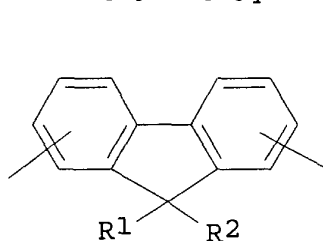
(**end-capping** reagent; Suzuki coupling in sequence for prepn. of colored conjugated polyfluorene/**polyaniline** block copolymers)

L47 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2003 ACS

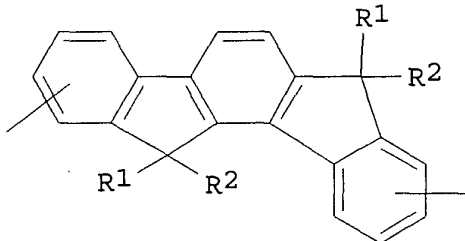
2001:435155 Document No. 135:46646 Fluorene-perylene copolymers and uses thereof. Becker, Stefan; Friend, Richard; Muellen, Klaus; Mackenzie, Devin; Marsitzky, Dirk; Setayesh, Sepas (Cambridge Display Technology Limited, UK; Max Planck Institut Fuer Polymerforschung). PCT Int. Appl. WO 2001042331 A1 20010614, 52 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2000-GB4594 20001201. PRIORITY: GB 1999-28981 19991209; GB 2000-18782 20000731.

GI

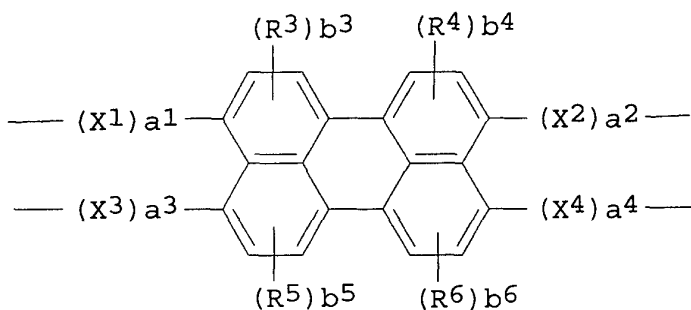
A—[B]_x—[C]_y—A I



II



III



IV

AB A statistical copolymer of formula (I) is provided wherein: A represents an **end-capping unit**; B is a moiety of formula (II) or (III), wherein each of R1 and R2 is hydrogen, alkyl, haloalkyl, alkoxy, alkoxyalkyl, aryl and aralkyl; C is a perylene-contg. moiety of formula (IV), wherein each of a1, a2, a3 and a4 is 0 or 1, each of b3, b4, b5 and b6 is 0, 1 or 2, each of X1, X2, X3 and X4 is a single bond or a linking unit, and each of R3, R4, R5 and R6 is hydrogen, alkyl, haloalkyl, alkoxy, alkoxyalkyl, aryl, aryloxy or aralkyl; and the ratio x:y is from 80:20 to 99.9:0.1. A kit for the synthesis of the copolymers of the invention and electroluminescent devices incorporating said copolymers are also provided.

IT 344454-72-4DP, reaction products with bromobenzene
 344454-73-5DP, reaction products with bromobenzene
 344454-75-7DP, reaction products with bromobenzene
 344454-77-9DP, reaction products with bromobenzene
 344454-78-0DP, reaction products with bromobenzene
 344454-79-1DP, reaction products with bromobenzene
 344454-80-4DP, reaction products with bromobenzene
 (prepn. of fluorene-peryene copolymers as electroluminescent device)

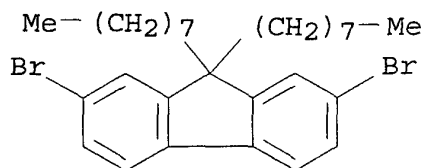
RN 344454-72-4 HCAPLUS

CN Perylene, 3,9-dibromo-, polymer with 2,7-dibromo-9,9-dioctyl-9H-fluorene and 3,10-dibromoperylene (9CI) (CA INDEX NAME)

CM 1

CRN 198964-46-4

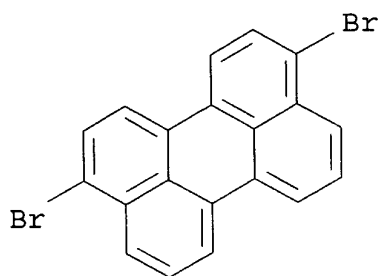
CMF C29 H40 Br2



CM 2

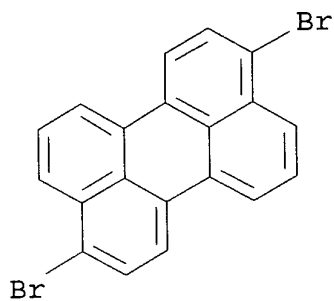
CRN 85514-20-1

CMF C20 H10 Br2



CM 3

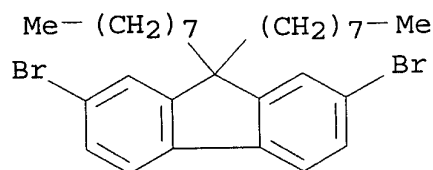
CRN 56752-35-3
CMF C20 H10 Br2



RN 344454-73-5 HCAPLUS
CN Perylene, 3,9-dibromo-1,6,7,12-tetrakis[4-(1,1-dimethylethyl)phenoxy]-, polymer with 2,7-dibromo-9,9-dioctyl-9H-fluorene and 3,10-dibromo-1,6,7,12-tetrakis[4-(1,1-dimethylethyl)phenoxy]perylene (9CI) (CA INDEX NAME)

CM 1

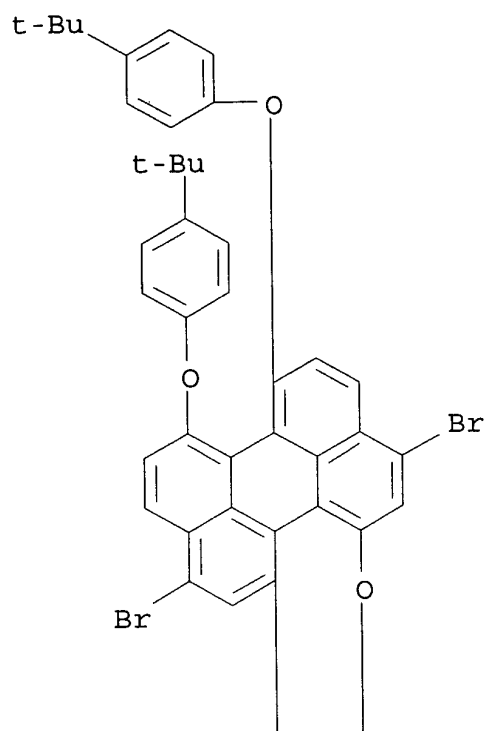
CRN 198964-46-4
CMF C29 H40 Br2



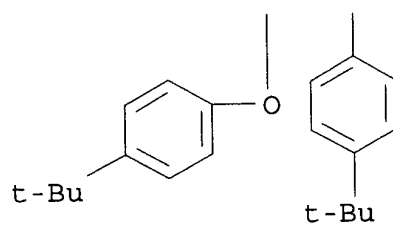
CM 2

CRN 185552-23-2
CMF C60 H58 Br2 O4

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CM 3

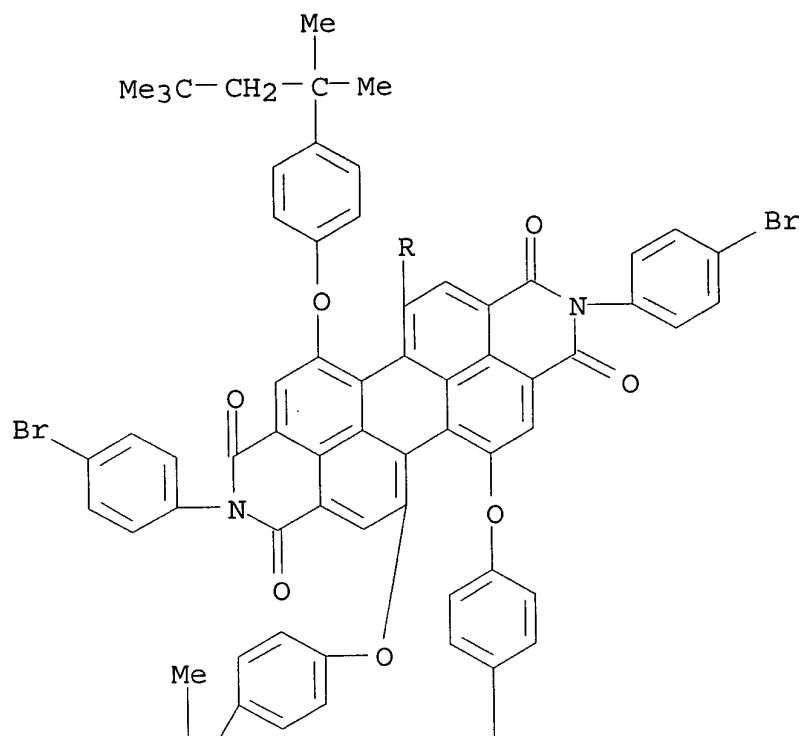
CRN 185552-21-0
CMF C60 H58 Br2 O4


t-Bu

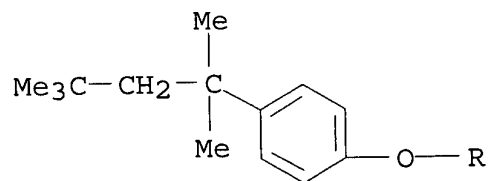
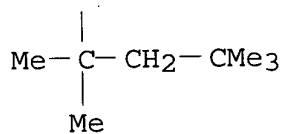
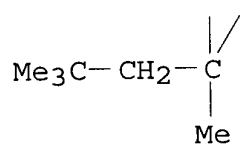
CRN 344454-74-6

CMF C92 H96 Br2 N2 O8

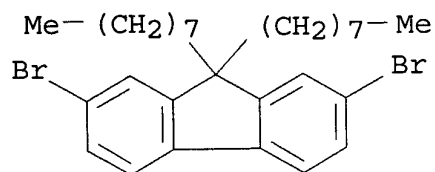
PAGE 1-A



PAGE 2-A



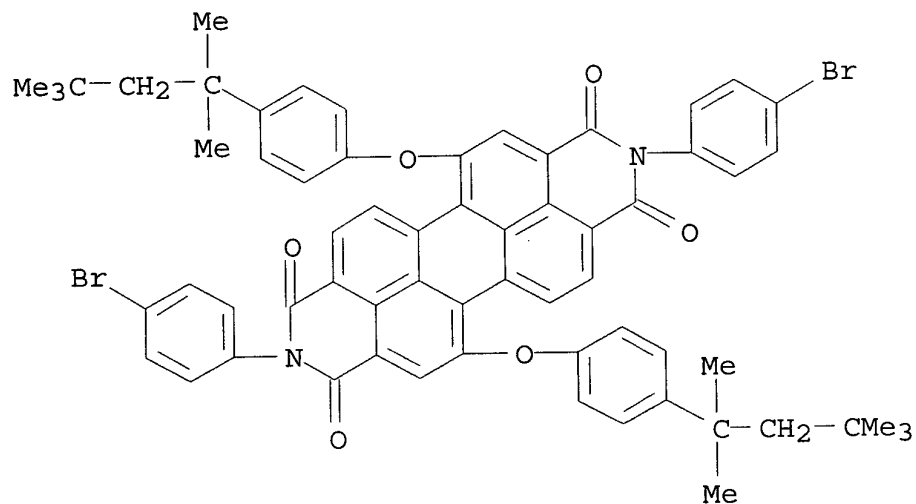
CRN 198964-46-4
CMF C29 H40 Br2



RN 344454-77-9 HCAPLUS
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H) -
tetrone, 2,9-bis(4-bromophenyl)-5,12-bis[4-(1,1,3,3-
tetramethylbutyl)phenoxy]-, polymer with 2,7-dibromo-9,9-dioctyl-9H-
fluorene (9CI) (CA INDEX NAME)

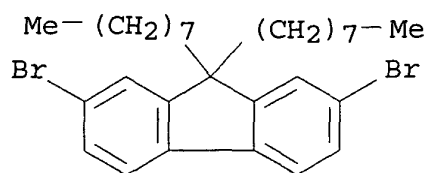
CM 1

CRN 344454-76-8
CMF C64 H56 Br2 N2 O6



CM 2

CRN 198964-46-4
CMF C29 H40 Br2

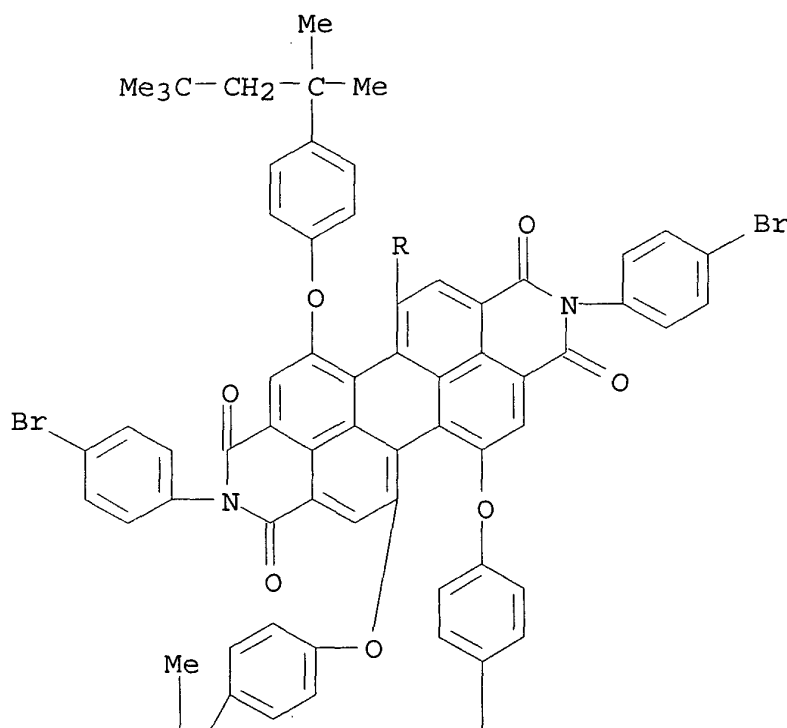


RN 344454-78-0 HCAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-
 tetrone, 2,9-bis(4-bromophenyl)-5,6,12,13-tetrakis[4-(1,1,3,3-
 tetramethylbutyl)phenoxy]-, polymer with 2,7-dibromo-9,9-dioctyl-9H-
 fluorene, 3,9-dibromoperylene and 3,10-dibromoperylene (9CI) (CA
 INDEX NAME)

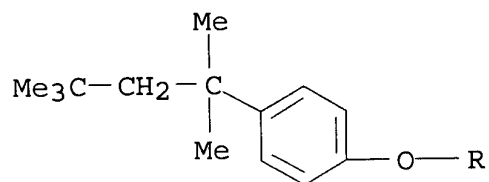
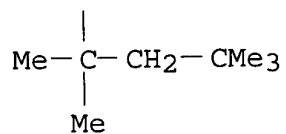
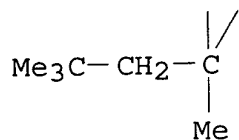
CM 1

CRN 344454-74-6
 CMF C92 H96 Br2 N2 O8

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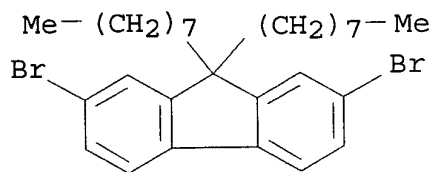


PAGE 2-A



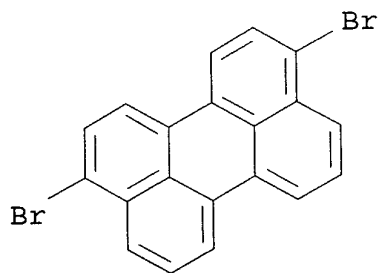
CM 2

CRN 198964-46-4
CMF C29 H40 Br2



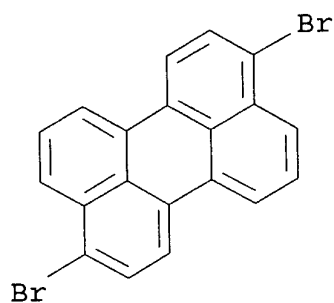
CM 3

CRN 85514-20-1
CMF C20 H10 Br2



CM 4

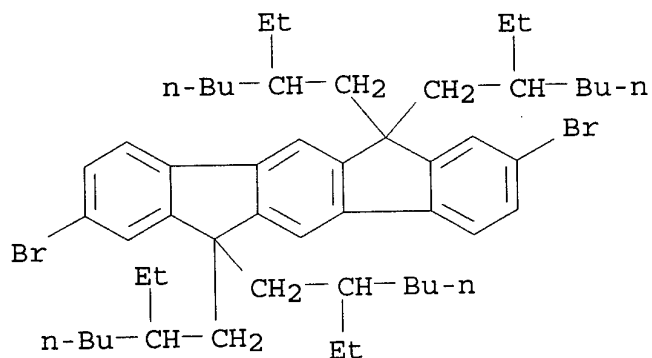
CRN 56752-35-3
CMF C20 H10 Br2



RN 344454-79-1 HCAPLUS
CN Perylene, 3,9-dibromo-, polymer with 2,8-dibromo-6,12-dihydro-6,6,12,12-tetrakis(2-ethylhexyl)indeno[1,2-b]fluorene and 3,10-dibromoperylene (9CI) (CA INDEX NAME)

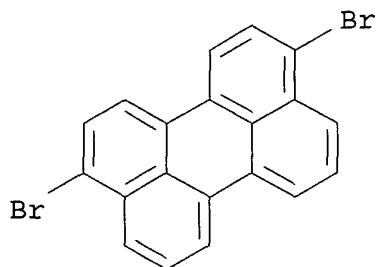
CM 1

CRN 264281-49-4
CMF C52 H76 Br2



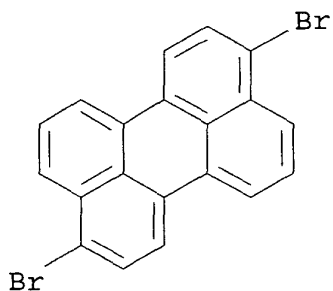
CM 2

CRN 85514-20-1
CMF C20 H10 Br2



CM 3

CRN 56752-35-3
CMF C20 H10 Br2

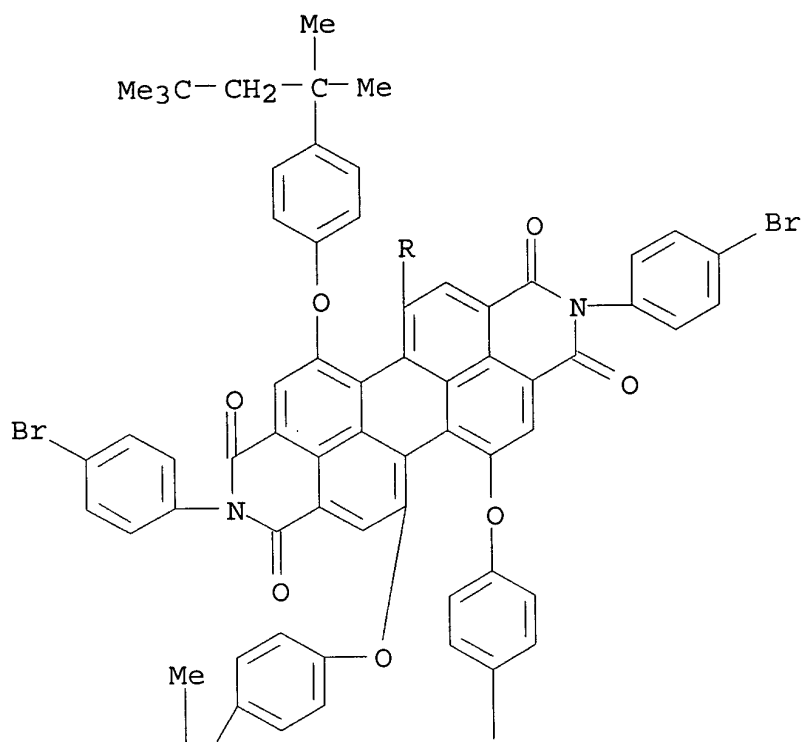


RN 344454-80-4 HCAPLUS
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-
tetrone, 2,9-bis(4-bromophenyl)-5,6,12,13-tetrakis[4-(1,1,3,3-
tetramethylbutyl)phenoxy]-, polymer with 2,8-dibromo-6,12-dihydro-
6,6,12,12-tetrakis(2-ethylhexyl)indeno[1,2-b]fluorene (9CI) (CA
INDEX NAME)

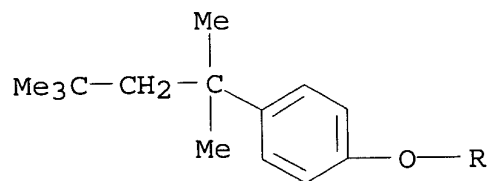
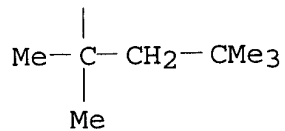
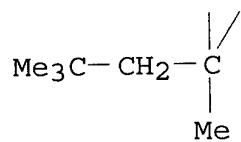
CM 1

CRN 344454-74-6
CMF C92 H96 Br2 N2 O8

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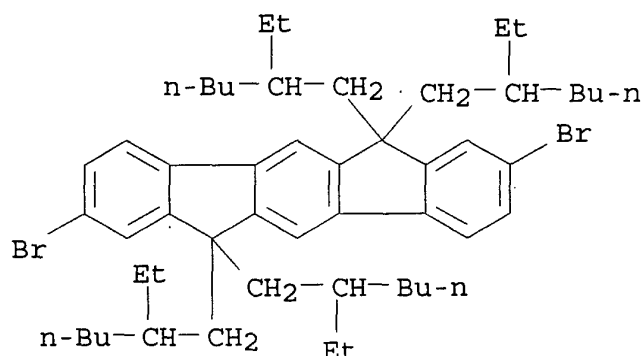
PAGE 2-A



CM 2

CRN 264281-49-4

CMF C52 H76 Br2



- IC ICM C08G061-02
ICS C08G061-10
- CC 35-4 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 73
- IT 108-86-1DP, Bromobenzene, reaction products with fluorene-peryene copolymers 55777-84-9DP, **Bromoaniline**, reaction products with fluorene-peryene copolymers 344454-72-4DP, reaction products with bromobenzene 344454-73-5DP, reaction products with bromobenzene 344454-75-7DP, reaction products with bromobenzene 344454-77-9DP, reaction products with bromobenzene 344454-78-0DP, reaction products with bromobenzene 344454-79-1DP, reaction products with bromobenzene 344454-80-4DP, reaction products with bromobenzene (prepn. of fluorene-peryene copolymers as electroluminescent device)
- L47 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2003 ACS
1998:762785 Document No. 130:110946 Thermal behavior of ethynyl and ethenyl terminated imide resins. Alam, S.; Varma, I. K. (Centre for Polymer Science and Engineering, Indian Institute of Technology, New Delhi, India). Journal of Thermal Analysis and Calorimetry, 51(1), 275-284 (English) 1998. CODEN: JTACF7. ISSN: 1418-2874. Publisher: Kluwer Academic Publishers.
- AB A series of ethynyl and ethenyl **end-capped** imide resins were synthesized by the reaction of 9,9-bis(4-aminophenyl) fluorene (BAF) with pyromellitic dianhydride (PMDA), 3,3',4,4'-benzophenone tetracarboxylic acid dianhydride (BTDA), 2,2-bis(3,4-dicarboxy phenyl)hexafluoropropane dianhydride (6F), and 3-ethynyl **aniline** maleic anhydride. Structural characterization was done based on IR spectra and elemental anal. Thermal characterization was done by differential scanning calorimetry and thermogravimetric anal. The decompn. temp. of cured resins was above 200.degree. in nitrogen atm. and the char yield at 800.degree. was 59-65.5%.

IT 25751-14-8DP, 9,9-Bis(4-aminophenyl)fluorene-pyromellitic dianhydride copolymer, 3-ethynylaniline and/or maleic anhydride-terminated 37384-56-8DP, 9,9-Bis(4-aminophenyl)fluorene-3,3',4,4'-benzophenonetetracarboxylic acid dianhydride copolymer, 3-ethynylaniline and/or maleic anhydride-terminated 134443-07-5DP, 9,9-Bis(4-aminophenyl)fluorene-2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride copolymer, 3-ethynylaniline and/or maleic anhydride-terminated

(oligomeric; prepn. and morphol. and thermal stability of ethynyl- and ethenyl-terminated aminophenylfluorene-contg. polyimides)

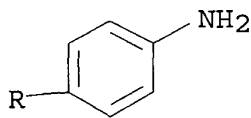
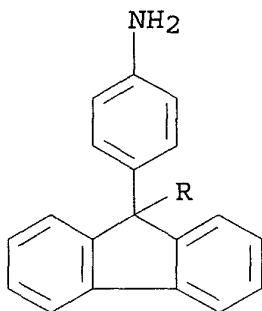
RN 25751-14-8 HCAPLUS

CN 1H,3H-Benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 15499-84-0

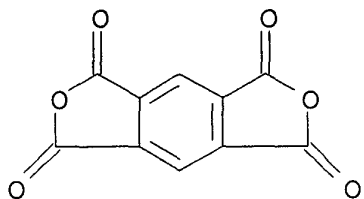
CMF C25 H20 N2



CM 2

CRN 89-32-7

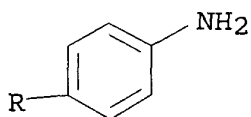
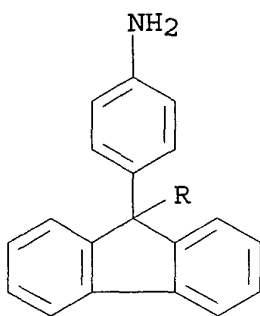
CMF C10 H2 O6



RN 37384-56-8 HCAPLUS
 CN 1,3-Isobenzofurandione, 5,5'-carbonylbis-, polymer with
 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

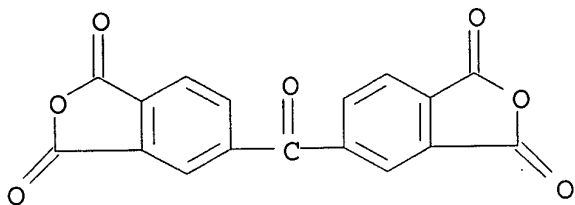
CM 1

CRN 15499-84-0
 CMF C25 H20 N2



CM 2

CRN 2421-28-5
 CMF C17 H6 O7

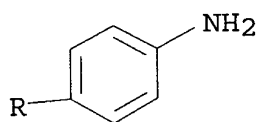
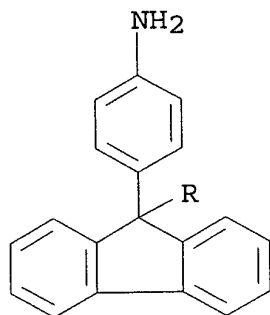


RN 134443-07-5 HCAPLUS
 CN 1,3-Isobenzofurandione, 5,5'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 15499-84-0

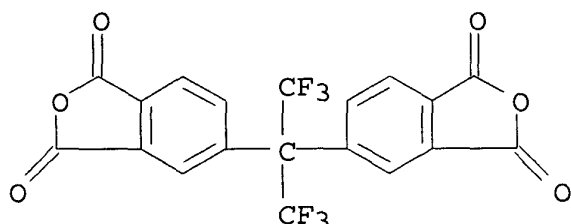
CMF C25 H20 N2



CM 2

CRN 1107-00-2

CMF C19 H6 F6 O6



- CC 37-5 (Plastics Manufacture and Processing)
- ST ethynyl terminated polyimide thermal degrdn char yield; ethenyl capped polyimide aminophenylfluorene thermal curing stability; flame resistance aminophenylfluorene polyimide **ethynylaniline end capping**
- IT **25751-14-8DP**, 9,9-Bis(4-aminophenyl)fluorene-pyromellitic dianhydride copolymer, 3-**ethynylaniline** and/or maleic anhydride-terminated **37384-56-8DP**, 9,9-Bis(4-aminophenyl)fluorene-3,3',4,4'-benzophenonetetracarboxylic acid dianhydride copolymer, 3-**ethynylaniline** and/or maleic anhydride-terminated **134443-07-5DP**, 9,9-Bis(4-aminophenyl)fluorene-2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride copolymer, 3-**ethynylaniline** and/or maleic anhydride-terminated 219641-89-1P 219641-92-6P (oligomeric; prepn. and morphol. and thermal stability of ethynyl- and ethenyl-terminated aminophenylfluorene-contg. polyimides)
- IT 108-31-6DP, Maleic anhydride, reaction products with 9,9-bis(4-aminophenyl)fluorene-based polyimides and polyamic acids 54060-30-9DP, 3-**Ethynylaniline**, reaction products with 9,9-bis(4-aminophenyl)fluorene-based polyimides and polyamic acids (prepn. and morphol. and thermal stability of ethynyl- and ethenyl-terminated aminophenylfluorene-contg. polyimides)
- L47 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2003 ACS
1994:632065 Document No. 121:232065 Molecular design of processable high-Tg thermoplastic matrix resins and structural adhesives. McGrath, J. E.; Grubbs, H.; Rogers, M. E.; Moy, T. M.; Joseph, W. A.; Mercier, R.; Marand, H.; Prasad, A.; Brennan, A. (NSF Sci. Technol. Cent., Virginia Polytech. Inst. and State Univ., Blacksburg, VA, 24061, USA). Proc. Jpn.-U.S. Conf. Compos. Mater., 6th, Meeting Date 1992, 213-21. Technomic: Lancaster, Pa. (English) 1993. CODEN: 59EOAK.
- AB Utilizing soln. cyclization, mol. wt. and **end group** control techniques, sol., fully cyclized polyimides and polybenzoxazoles with very high glass transition temps. have been developed to meet high temp. applications. Aspects of soln. imidization by both the polyamic acid route and by the ester-acid route are investigated. Polyimides based on pyromellitic dianhydride and a 3F diamine, bis(p-aminophenyl)trifluoromethylphenylmethane, exhibit glass transition temps. of 420.degree.. These

polyimides are sol. in polar aprotic solvents and form tough, transparent films which demonstrate excellent mech. integrity and thermooxidative stability. Fully cyclodehydrated, fluorinated polybenzoxazoles have been prepd. by a low temp. soln. cyclization method. The resulting polybenzoxazoles exhibit high glass transition temps., good thermooxidative stability, and soly. in N-methylpyrrolidone. These materials are candidates for 700.degree.F matrix resin and structural adhesive applications. An overview of the synthesis and characterization of these materials will be provided.

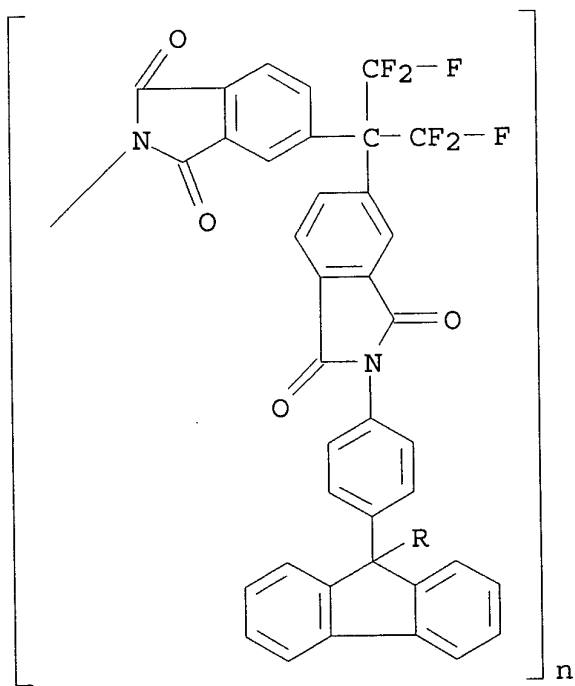
IT 105137-79-9DP, acetylene-terminated 134443-07-5DP,
acetylene-terminated

(fluorine-contg. polyimides and polybenzoxazoles for
thermoplastic matrix resins and structural adhesives)

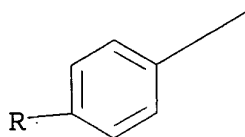
RN 105137-79-9 HCAPLUS

CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenylene] (9CI) (CA INDEX NAME)

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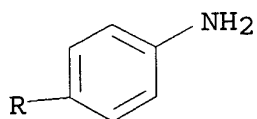
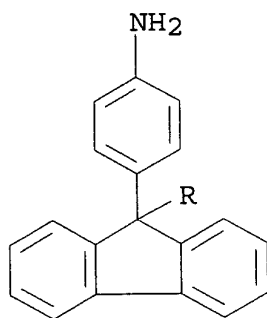
PAGE 2-A



RN 134443-07-5 HCAPLUS
 CN 1,3-Isobenzofurandione, 5,5'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

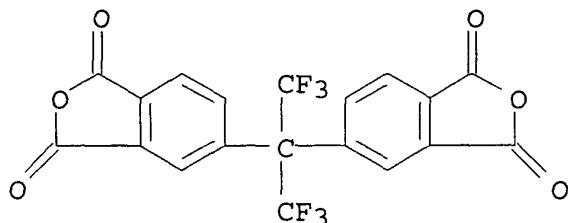
CM 1

CRN 15499-84-0
 CMF C25 H20 N2



CM 2

CRN 1107-00-2
 CMF C19 H6 F6 O6



CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38

IT 28825-50-5DP, acetylene-terminated 28825-50-5P 32240-73-6DP,
 acetylene-terminated 32240-73-6P 37384-56-8P 40210-57-9P,
 9,9-Bis(4-aminophenyl)fluorene-3,3',4,4'-benzophenonetetracarboxylic
 dianhydride polymer, SRU 54571-77-6DP, acetylene-terminated
 54571-77-6P, 3,3',4,4'-Benzophenonetetracarboxylic
 dianhydride-3,3'-diaminodiphenyl sulfone copolymer, SRU
 87186-96-7P 101505-27-5P, Benzophenonetetracarboxylic dianhydride-
bisaniline P copolymer 101526-08-3P 105009-93-6P
 105038-78-6P, 1,3-Isobenzofurandione, 5,5'-[2,2,2-trifluoro-1-
 (trifluoromethyl)ethylidene]bis-, polymer with 4,4'-[1,4-
 phenylenebis(oxy)]bis[benzenamine] **105137-79-9DP**,
 acetylene-terminated 105137-79-9P 105137-81-3DP,
 acetylene-terminated 105137-81-3P 121509-65-7DP,
 acetylene-terminated 121509-65-7P 124912-14-7DP,
 acetylene-terminated 124912-14-7P, 1,3-Isobenzofurandione,
 5,5'-(2,2,2-trifluoro-1-phenylethylidene)bis-, polymer with
 1,4-benzenediamine **134443-07-5DP**, acetylene-terminated
 134443-07-5P 136675-43-9P 136675-45-1P 136675-46-2P
 136691-70-8P 136691-73-1P 136691-74-2P 148030-85-7P
 148104-66-9P 152433-13-1P
 (fluorine-contg. polyimides and polybenzoxazoles for
 thermoplastic matrix resins and structural adhesives)

L47 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2003 ACS
 1994:606724 Document No. 121:206724 New developments in soluble
 thermoplastic high glass transition temperature polyimides. Rogers,
 M. E.; Moy, T. M.; Kim, Y. J.; McGrath, J. E. (Dep. Chem., Virginia
 Polytech. Inst. and State Univ., Blacksburg, VA, 24061, USA).
 Materials Research Society Symposium Proceedings, 264 (Electronic
 Packaging Materials Science VI), 13-29 (English) 1992. CODEN:
 MRSPDH. ISSN: 0272-9172.

AB Utilizing soln. imidization, mol.-wt. and **end-**
group-control techniques, sol. and fully cyclized polyimides
 with very high glass transition temps. have been developed to meet
 high-temp. applications. Mechanistic aspects are investigated for
 soln. imidization by both the poly(amic acid) route and by the
 ester-acid route. Polyimides based on pyromellitic dianhydride and
 a 3F diamine exhibit glass transition temps. of 420.degree.. These
 polyimides are sol. in polar aprotic solvents and form tough,

transparent films which demonstrate mech. integrity and thermooxidative stability at 700 .degree.F. Various processing routes are explored to demonstrate the viability of these materials in high-temp. applications.

IT 134443-07-5DP, aminophenylacetylene-terminated
(prepn. and mech. and thermal properties of)

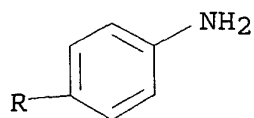
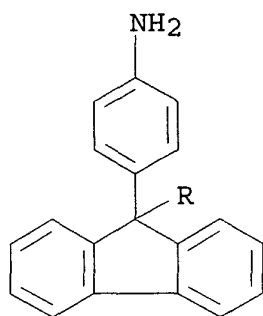
RN 134443-07-5 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 15499-84-0

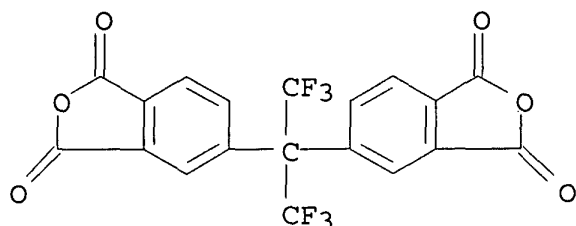
CMF C25 H20 N2



CM 2

CRN 1107-00-2

CMF C19 H6 F6 O6



- CC 37-5 (Plastics Manufacture and Processing)
- IT 62-53-3P, **Aniline**, preparation
(attempted condensation as model for polycondensation)
- IT 65-85-0P, Benzoic acid, preparation 84-66-2P, Di-Ethyl phthalate
93-99-2P, Phenyl benzoate 2306-33-4P, Monoethyl phthalate
(attempted condensation with **aniline** as model for polycondensation)
- IT 28825-50-5DP, aminophenylacetylene-terminated 28825-50-5P
32240-73-6DP, aminophenylacetylene-terminated 32240-73-6P
37384-56-8P 39940-16-4P 40210-57-9P 40921-63-9DP,
aminophenylacetylene-terminated 40921-63-9P 41040-11-3P
54060-30-9DP, 3-Aminophenylacetylene, reaction products with
polyimides 54571-77-6P 86676-45-1P 86676-55-3P 87183-01-5P
87186-96-7P 89527-22-0P 91993-30-5P 92004-90-5DP,
aminophenylacetylene-terminated 92004-90-5P 101505-27-5P
101526-08-3P 105009-93-6P 105038-78-6P 105137-79-9P
129059-49-0P 129080-26-8P **134443-07-5DP**,
aminophenylacetylene-terminated 134443-07-5P 136675-43-9P
136675-45-1P 136675-46-2P 136691-70-8P 136691-73-1P
136691-74-2P 147242-70-4P 147242-72-6P 147242-73-7P
147264-24-2DP, aminophenylacetylene-terminated 158194-50-4P
(prepn. and mech. and thermal properties of)
- L47 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2003 ACS
- 1993:235014 Document No. 118:235014 LaRC-ITPI/arylene ether
copolymers. Jensen, Brian J.; Working, Dennis C. (Langley Res.
Cent., NASA, Hampton, VA, 23665-5225, USA). High Performance
Polymers, 4(1), 55-62 (English) 1992. CODEN: HPPOEX. ISSN:
0954-0083.
- AB A series of novel imide/arylene ether copolymers were prepd. from
the reaction of an amine-terminated amorphous arylene ether oligomer
and an anhydride-terminated amorphous imide oligomer. These
copolymers were thermally characterized with glass temps. of
224-257.degree., and mech. properties were measured on thin films.
One **block** copolymer was **end-capped** and
the mol. wt. was controlled to provide a material that displayed
good compression moldability. Adhesive properties were detd. with
Ti/Ti tensile shear strength as high as 3750 psi at room temp. and
graphite composite properties were good.
- IT **147769-27-5DP**, phenyl-terminated **147815-35-8DP**,
phenyl-terminated

(prepn. and adhesive properties of)

RN 147769-27-5 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-(1,3-phenylenedicarbonyl)bis-, polymer with .alpha.-[4-[3-[4-(4-aminophenoxy)benzoyl]benzoyl]phenyl]-.omega.-(4-aminophenoxy)poly(oxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,3-phenylenecarbonyl-1,4-phenylene) and 1,3-benzenediamine, block (9CI) (CA INDEX NAME)

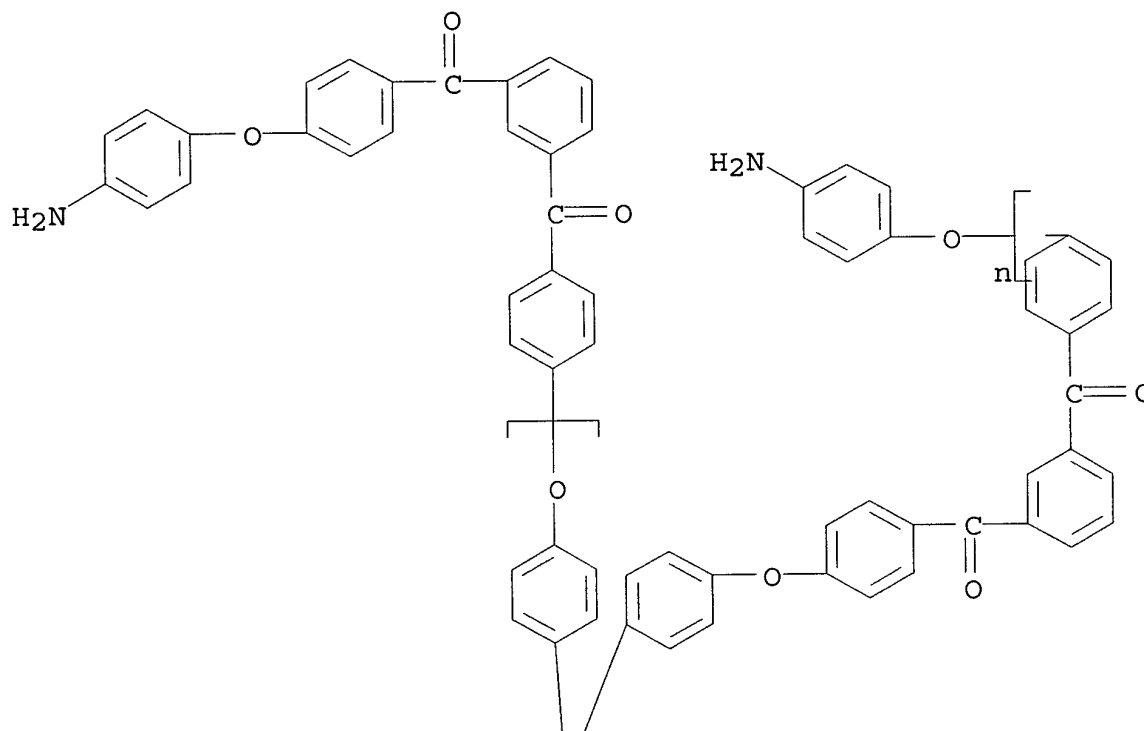
CM 1

CRN 139890-53-2

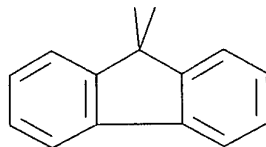
CMF (C45 H28 O4)n C32 H24 N2 O4

CCI PMS

PAGE 1-A



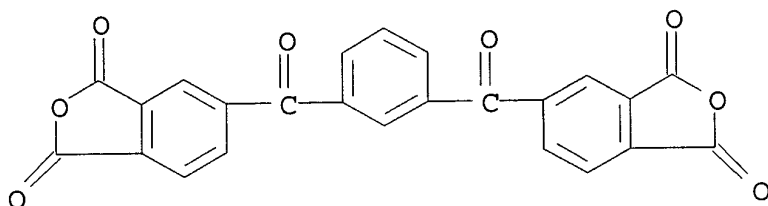
PAGE 2-A



CM 2

CRN 23602-88-2

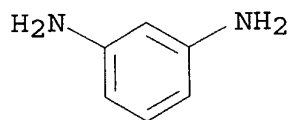
CMF C24 H10 O8



CM 3

CRN 108-45-2

CMF C6 H8 N2



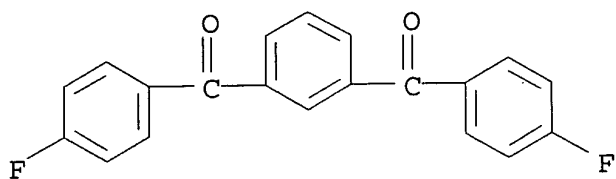
RN 147815-35-8 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-(1,3-phenylenedicarbonyl)bis-, polymer with 1,3-benzenediamine, 4,4'-(9H-fluoren-9-ylidene)bis[phenol] and 1,3-phenylenebis[(4-fluorophenyl)methanone], block (9CI) (CA INDEX NAME)

CM 1

CRN 108464-88-6

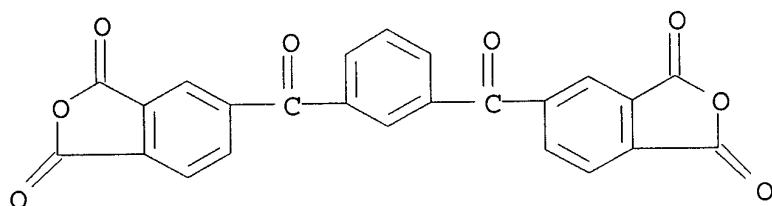
CMF C20 H12 F2 O2



CM 2

CRN 23602-88-2

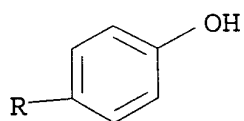
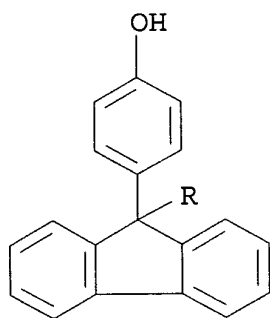
CMF C24 H10 O8



CM 3

CRN 3236-71-3

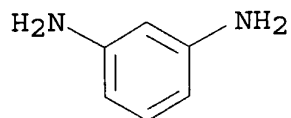
CMF C25 H18 O2



CM 4

CRN 108-45-2

CMF C6 H8 N2



IT 126843-34-3DP, reaction products with aminophenol
(prepn. and properties and polymn. of, with anhydride-terminated
arom. polyimide)

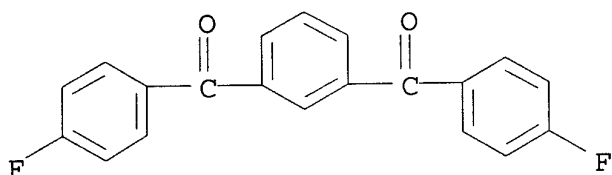
RN 126843-34-3 HCAPLUS

CN Methanone, 1,3-phenylenebis[(4-fluorophenyl)-, polymer with
4,4'-(9H-fluoren-9-ylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 108464-88-6

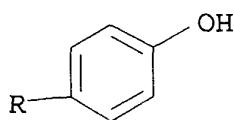
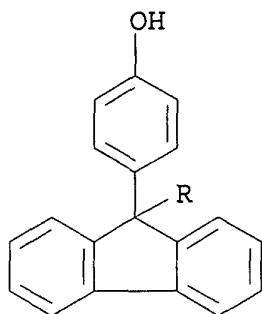
CMF C20 H12 F2 O2



CM 2

CRN 3236-71-3

CMF C25 H18 O2



- CC 37-5 (Plastics Manufacture and Processing)
- IT 62-53-3DP, **Aniline**, reaction products with bis(fluorobenzoyl)benzene-bis(hydroxyphenyl)fluorene-diaminobenzene-isophthaloyldiphthalic anhydride copolymer **147769-27-5DP**, phenyl-terminated **147815-35-8DP**, phenyl-terminated (prepn. and adhesive properties of)
- IT 123-30-8DP, p-Aminophenol, reaction products with bis(fluorobenzoyl)benzene-bis(hydroxyphenyl)fluorene copolymer **126843-34-3DP**, reaction products with aminophenol 139890-53-2P (prepn. and properties and polymn. of, with anhydride-terminated arom. polyimide)
- L47 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2003 ACS
1992:152902 Document No. 116:152902 Imide-arylene ether copolymers - Part II. Jensen, B. J.; Hergenrother, P. M.; Bass, R. G. (Langley Res. Cent., NASA, Hampton, VA, 23665-5225, USA). High Performance Polymers, 3(1), 13-23 (English) 1991. CODEN: HPPOEX. ISSN: 0954-0083.
- AB A series of imide-arylene ether copolymers were prepd. by reaction of amorphous arylene ether oligomers with semi-crystn. imide oligomer. The amine-terminated poly(arylene-ethers) were prepd. by copolymn. of 1,3-bis(4-fluorobenzoyl)benzene with 9,9-bis(4-hydroxyphenyl)fluorene and 4-aminophenol. High-mol.-wt. block copolymers were prepd. by reaction of the above **polymer and anhydride-terminated 3,3',4,4'-benzophenonetetracarboxylic acid-1,3-bis(4-aminophenoxy-4'-benzoyl)benzene copolymer**. One **block** copolymer was **end-capped with aniline** and the mol. wt. was controlled to provide a material that displayed good compression moldability and adhesive and composite properties.

IT 126843-34-3DP, aminophenol-terminated
(prepn. and condensation of, with poly(amic acids), high-mol.-wt.
block copolymers from)

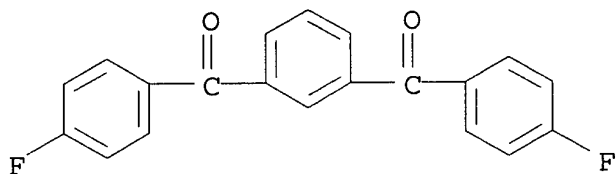
RN 126843-34-3 HCAPLUS

CN Methanone, 1,3-phenylenebis[(4-fluorophenyl)-, polymer with
4,4'-(9H-fluoren-9-ylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 108464-88-6

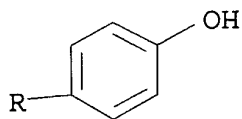
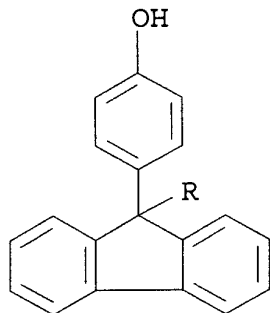
CMF C20 H12 F2 O2



CM 2

CRN 3236-71-3

CMF C25 H18 O2



CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 38

IT 126843-34-3DP, aminophenol-terminated 139890-53-2P
(prepn. and condensation of, with poly(amic acids), high-mol.-wt.)

block copolymers from)

L47 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2003 ACS

1992:84296 Document No. 116:84296 Synthesis and characterization of a linear cardo polyimide from (5,5'-bisisobenzofuran)-1,1',3,3'-tetrone and 4,4'-(9H-fluoren-9-ylidene)bisphenylamine. Biolley, Nathalie; Gregoire, Martine; Pascal, Thierry; Sillion, Bernard (CNRS, Vernaison, 69390, Fr.). Polymer, 32(17), 3256-61 (English) 1991. CODEN: POLMAG. ISSN: 0032-3861.

AB Starting from an arom. diamine, 4,4'-(9H-fluoren-9-ylidene)bisphenylamine (FBPA), a series of linear polyimides were prepd. by polycondensation with different molar proportions of (5,5'-bisisobenzofuran)-1,1',3,3'-tetrone (BTDA). The polymers were anhydride **end-capped** or phenylimide **end-capped**. Owing to the presence of lateral fluorene groups (cardo structure), the fully cyclized FBPA/BTDA polyimides exhibited good soly. in many solvents such as DMF, N-methylpyrrolidone, m-cresol, DMSO, and N,N-dimethylacetamide. A detailed study of the FBPA/BTDA chem. structure and mol. wt. was performed by ¹³C NMR and size-exclusion chromatog. The thermal and mech. properties of polymer films were studied. The glass transition temp. detd. from thermomech. anal. ranged from 350 to 380.degree. and the Young's modulus measured from tensile tests was .apprx.2.5 GPa at room temp. and 1.7 GPa at 200.degree.. Thermogravimetric analyses and water uptake detn. showed a high decompn. temp., .apprx.400.degree. under Ar, and low water absorption (<1%) of the polyimides.

IT 37384-56-8DP, aniline-terminated

(prepn. and NMR spectra and thermal and mech. properties and water uptake of)

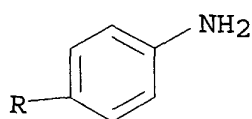
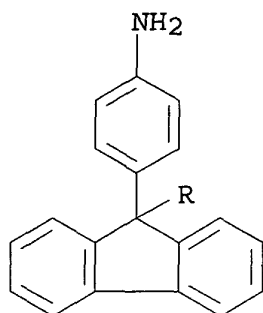
RN 37384-56-8 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-carbonylbis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 15499-84-0

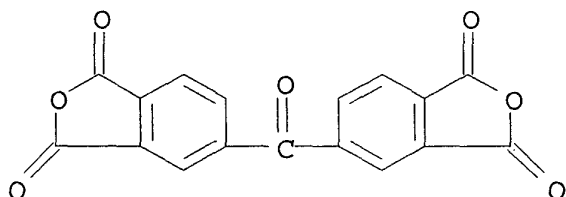
CMF C25 H20 N2



CM 2

CRN 2421-28-5

CMF C17 H6 O7



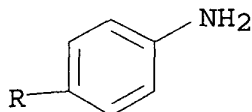
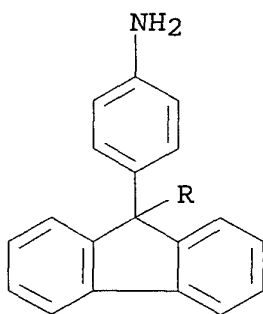
- CC 35-5 (Chemistry of Synthetic High Polymers)
- IT 62-53-3DP, **Aniline**, reaction products with
(fluorenylidene)bisphenylamine-(bisisobenzofuran)tetrone copolymer
37384-56-8DP, aniline-terminated 37384-56-8P
40210-57-9P 138918-70-4P
(prepn. and NMR spectra and thermal and mech. properties and
water uptake of)
- IT 486-25-9, Fluoren-9-one
(reaction of, with **aniline**)
- IT 2421-28-5
(reaction of, with **aniline** or anisidine)
- IT 62-53-3, **Aniline**, reactions
(reaction of, with fluorenone)

- 1980:129757 Document No. 92:129757 Unsaturated oligoimides of cardo diamines and their polymers. Korshak V. V.; Vinogradova, S. V.; Vygodskii, Ya. S.; Gurbich, G. S.; Davydova, I. F.; Kiselev, B. A. (Inst. Elementoorg. Soedin., Moscow, USSR). Vysokomolekulyarnye Soedineniya, Seriya A, 22(1), 52-7 (Russian) 1980. CODEN: VYSAAF. ISSN: 0507-5475.
- AB Acrylamide and methacrylamide-terminated oligomeric polyamides, sol. in DMF, AcNMe₂ and C₂H₂Cl₄, with increased thermal stability and heat resistance on thermal crosslinking are prepd. from cardo diamines and 4,4'-carbonyldiphthalic and 4,4'-oxydiphthalic anhydrides. The prepd. oligoimides had softening temps. 210-310.degree.. The heat resistance of the polyimides increased with an increase in degree of polymn. The polymer with unsatd. end groups were prepd. by a 1- or 2-stage high-temp. cyclization. The structure of the oligomers was confirmed by IR spectroscopy. The degrdn. temp. of acrylic anhydride-treated 4,4'-carbonyldiphthalic anhydride-4,4'-fluoren-9-ylidenedianiline copolymer increased to 400-50.degree. when the degree polymn. was increased from 3 to 10.
- IT 25735-98-2D, (meth)acrylamide-terminated 37384-56-8D, (meth)acrylamide-terminated (oligomeric, soly. and thermal stability of)
- RN 25735-98-2 HCAPLUS
- CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 15499-84-0

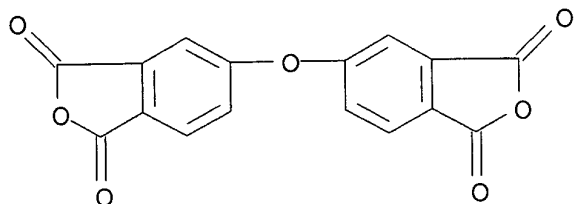
CMF C25 H20 N2



CM 2

CRN 1823-59-2

CMF C16 H6 O7



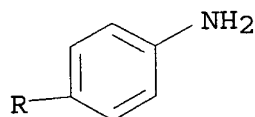
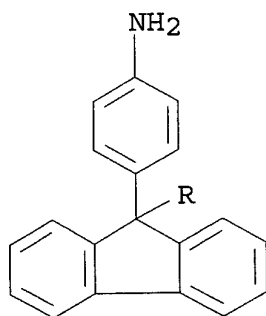
RN 37384-56-8 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-carbonylbis-, polymer with
4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 15499-84-0

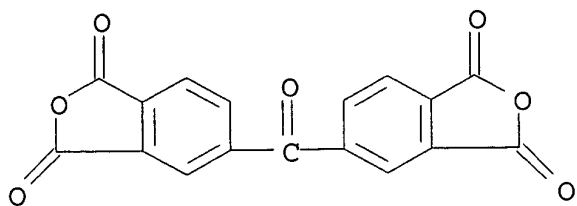
CMF C25 H20 N2



CM 2

CRN 2421-28-5

CMF C17 H6 O7



CC 36-5 (Plastics Manufacture and Processing)
 IT 25735-97-1D, (meth)acrylamide-terminated **25735-98-2D**,
 (meth)acrylamide-terminated 25735-99-3D, (meth)acrylamide-
 terminated 25736-01-0D, (meth)acrylamide-terminated 25736-04-3D,
 (meth)acrylamide-terminated 25736-05-4D, (meth)acrylamide-
 terminated 26161-79-5D, (meth)acrylamide-terminated
37384-56-8D, (meth)acrylamide-terminated 73165-41-0
 73165-42-1 73165-43-2 73165-44-3 73165-45-4 73165-46-5
 73165-47-6 73165-48-7 73165-49-8 73165-50-1 73165-51-2
 73165-52-3 73165-53-4 73165-54-5
 (oligomeric, soly. and thermal stability of)

=> d 149 1-9 cbib abs hitstr hitind

L49 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2003 ACS

2002:872871 Document No. 138:90348 **End-group**

analysis of blue **light-emitting** polymers using
 matrix-assisted laser desorption/ionization time-of-flight mass
 spectrometry. Chen, Hui; He, Meiyu; Pei, Jian; Liu, Bin (Department
 of Chemistry, Peking University, Beijing, 100871, Peop. Rep. China).
 Analytical Chemistry, 74(24), 6252-6258 (English) 2002. CODEN:
 ANCHAM. ISSN: 0003-2700. Publisher: American Chemical Society.

AB An anal. method based on matrix-assisted laser desorption/ionization
 time-of-flight mass spectrometry (MALDI-TOF MS) has been applied to
 provide information on the structure of a copolymer, e.g., repeat
unit and end group. Seven conjugated *early enough?*
 polymers, which have been demonstrated as the active component in
 blue **light-emitting diodes**, were
 synthesized through Suzuki polycondensation reaction in the presence
 of Pd(PPh₃)₄ catalyst. Their mol. wts. were obtained using gel
 permeation chromatog. anal. MALDI-TOF MS was used to investigate
 the structure information in detail. The proposed **end-**
group structures were confirmed by the identity between the
 obsd. and the simulated isotopic distribution of each polymer. The
 results demonstrate that these synthetic polymers possess various
end groups and even contain macrocycles. The
 catalyst Pd(PPh₃)₄ was found to introduce Ph **end**
groups via aryl-aryl exchange between the catalytic
 palladium intermediate and the triphenylphosphine ligand. All these
 results are based on the anal. of the mass spectrum data, which
 suggests that MALDI-TOF MS is an extraordinarily strong tool in

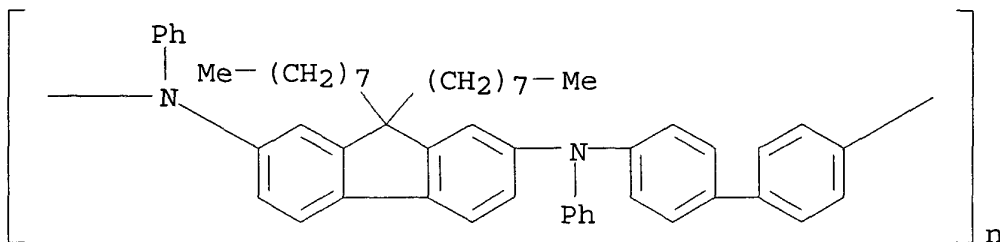
synthetic polymer structure anal.

IT 484032-91-9

(end-group anal. of blue light-emitting polymers using matrix-assisted aaser desorption/ionization time-of-flight mass spectrometry)

RN 484032-91-9 HCAPLUS

CN Poly[(phenylimino)(9,9-dioctyl-9H-fluorene-2,7-diyl)(phenylimino)[1,1'-biphenyl]-4,4'-diyl] (9CI) (CA INDEX NAME)



CC 36-4 (Physical Properties of Synthetic High Polymers)

ST blue light emitting conjugated polymer

end group mass spectrometry

IT Polymers, properties

(conjugated; end-group anal. of blue light-emitting polymers using matrix-assisted aaser desorption/ionization time-of-flight mass spectrometry)

IT Molecular weight

Molecular weight distribution

(end-group anal. of blue light-emitting polymers using matrix-assisted aaser desorption/ionization time-of-flight mass spectrometry)

IT Polyamines

(polyarylene-; end-group anal. of blue light-emitting polymers using matrix-assisted aaser desorption/ionization time-of-flight mass spectrometry)

IT Functional groups

(terminal groups; end-group anal. of blue light-emitting polymers using matrix-assisted aaser desorption/ionization time-of-flight mass spectrometry)

IT 133019-09-7, Poly(9,9-dihexyl-9H-fluorene-2,7-diyl) 244036-31-5

297153-10-7 353246-72-7 353246-74-9 484032-90-8

484032-91-9 484064-85-9 484064-86-0

(end-group anal. of blue light-emitting polymers using matrix-assisted aaser desorption/ionization time-of-flight mass spectrometry)

L49 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2003 ACS

2002:849695 Document No. 137:353524 .pi.-stacked polymer having unique optical property and solubility and polymerizable monomer therefor. Nakano, Tamaki (Japan Science and Technology Corporation, Japan).

PCT Int. Appl. WO 2002088202 A1 20021107, 48 pp. DESIGNATED STATES:
 W: CA, JP, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
 IT, LU, MC, NL, PT, SE, TR. (Japanese). CODEN: PIXXD2.
 APPLICATION: WO 2002-JP4120 20020424. PRIORITY: JP 2001-130872
 20010427.

AB The polymer has side chains comprising a functional group contg. a
 cyclic moiety composed of carbon and hydrogen and/or of carbon,
 hydrogen, and heteroatom and having aromaticity and has a no.-av.
 mol. wt. of 250-1,000,000. That molar extinction coeff. of the
 polymer which is attributable to the cyclic moieties having
 aromaticity is lower by .ltoreq.30% than that molar extinction
 coeff. of the polymerizable monomer used for incorporating the
 cyclic moieties having aromaticity which is attributable to the
 cyclic moiety having aromaticity. This polymer has a hypochromic
 effect because it has a stacked structure in which the cyclic
 moieties have been superposed. When an electron-donating compd. or
 electron-accepting compd. is added, the polymer forms a
charge-transfer complex. Fridel Crafts acylation
 of fluorene with valeroyl chloride, Wolff-Kishner redn.,
 condensation with paraformaldehyde, and treatment with tert-BuOK
 gave 2,7-di-pentyldibenzofulvene. Anionic polymn. of the
 di-pentyldibenzofulvene with n-BuLi gave a polymer with mol. wt.
 1000 and .pi. stacked structure.

IT **79918-16-4DP, 1-pyrenylmethoxy-terminated**
 (.pi.-stacked **polymer** having unique optical property
 and soly. and polymerizable monomer therefor)

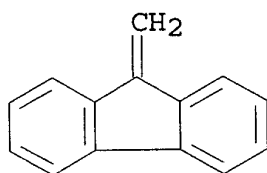
RN 79918-16-4 HCAPLUS

CN 9H-Fluorene, 9-methylene-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 4425-82-5

CMF C14 H10



IC ICM C08F012-00

ICS C08L025-00; C08K005-00

CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 25, 73

ST optical property soly pi stacked dibenzofulvene polymer;
charge transfer complex arom side chain polymer;
 hypochromic effect pi stacked dibenzofulvene polymer

IT **Charge transfer** complexes

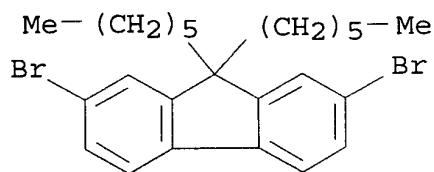
(.pi.-stacked polymer having unique optical property and soly.

- and polymerizable monomer therefor)
- IT **79918-16-4DP**, 1-pyrenylmethoxy-**terminated**
 79918-16-4P 474431-19-1P 474431-20-4P 474431-24-8P
 (.pi.-stacked **polymer** having unique optical property
 and soly. and polymerizable monomer therefor)
- L49 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2003 ACS
- 2001:713837 Document No. 135:264372 Opto-electronic devices fabricated
 with dual purpose electroactive copolymers. Hawker, Craig Jon;
 Klaerner, Gerrit; Lee, Jeong-Ik; Lee, Victor Yee-Way; Miller, Robert
 Dennis; Scott, John Campbell (USA). U.S. Pat. Appl. Publ. US
 20010024738 A1 20010927, 21 pp., Division of U.S. Ser. No. 313,903.
 (English). CODEN: USXXCO. APPLICATION: US 2001-819119 20010327.
 PRIORITY: US 1999-313903 19990518.
- AB Dual purpose electroactive copolymers are described which comprise a
charge transporting polymeric segment and a
light-emitting polymeric segment. The copolymers
 may be A-B-A triblock copolymers, brush-type graft copolymers, or
 variations thereof. Methods of synthesizing the electroactive
 copolymers are provided as well, as are optoelectronic devices,
 particularly LEDs, fabricated using the copolymers.
- IT **214462-09-6DP**, reaction products with reaction products of
 vinyltriphenylamine or oxadiazole deriv. polymers with piperidiny
 deriv.-**terminated** styrene **polymers**
362524-27-4DP, tetramethylpiperidiny group-contg.
 (optoelectronic devices fabricated with dual purpose
 electroactive copolymers and the copolymers and their prepn.)
- RN 214462-09-6 HCAPLUS
- CN Anthracene, 9,10-dibromo-, polymer with 2,7-dibromo-9,9-dihexyl-9H-
 fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 189367-54-2

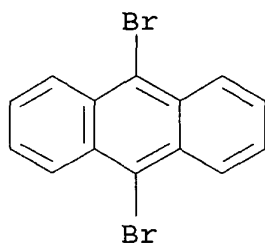
CMF C25 H32 Br2



CM 2

CRN 523-27-3

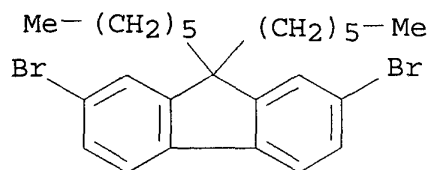
CMF C14 H8 Br2



RN 362524-27-4 HCAPLUS
 CN 9H-Fluorene, 2,7-dibromo-9,9-dihexyl-, polymer with ethenylbenzene,
 graft (9CI) (CA INDEX NAME)

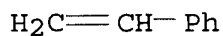
CM 1

CRN 189367-54-2
 CMF C25 H32 Br2



CM 2

CRN 100-42-5
 CMF C8 H8

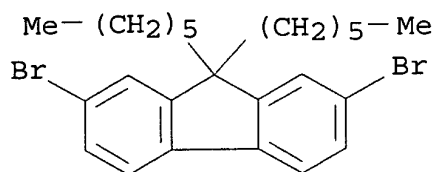


IT 201807-75-2DP, reaction products with piperidinyll deriv.-
terminated styrene polymers
 (optoelectronic devices fabricated with dual purpose
 electroactive copolymers and the copolymers and their prepn.)

RN 201807-75-2 HCAPLUS
 CN 9H-Fluorene, 2,7-dibromo-9,9-dihexyl-, homopolymer (9CI) (CA INDEX
 NAME)

CM 1

CRN 189367-54-2
 CMF C25 H32 Br2



IC ICM H05B033-12
 NCL 428690000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 38, 76
 ST dual purpose **electroluminescent charge transport** copolymer
 IT Phosphors
 (electroluminescent; optoelectronic devices fabricated with dual purpose electroactive copolymers and the copolymers and their prepn.)
 IT Conducting polymers
Electroluminescent devices
 (optoelectronic devices fabricated with dual purpose electroactive copolymers and the copolymers and their prepn.)
 IT 9003-53-6DP, Polystyrene, reaction products with reaction products of fluorene polymers with piperidinyl deriv.-**terminated** styrene **polymers** 78099-29-3DP, 4-Vinyltriphenylamine homopolymer, reaction products with reaction products of fluorene polymers with piperidinyl deriv.-**terminated** styrene **polymers** 214462-09-6DP, reaction products with reaction products of vinyltriphenylamine or oxadiazole deriv. polymers with piperidinyl deriv.-**terminated** styrene **polymers** 362524-27-4DP, tetramethylpiperidinyl group-contg.
 (optoelectronic devices fabricated with dual purpose electroactive copolymers and the copolymers and their prepn.)
 IT 2564-83-2DP, 2,2,6,6-Tetramethylpiperidinyloxy, reaction products with polymers 24936-50-3DP, p-Bromostyrene homopolymer, reaction products with TEMPO 25067-59-8DP, N-Vinylcarbazole homopolymer, reaction products with piperidinyl deriv.-**terminated** styrene **polymers** 78099-29-3DP, 4-Vinyltriphenylamine homopolymer, reaction products with piperidinyl deriv.-**terminated** styrene **polymers** 201807-75-2DP, reaction products with piperidinyl deriv.-**terminated** styrene **polymers** 236092-91-4P 362524-25-2DP, reaction products with piperidinyl deriv.-**terminated** styrene **polymers** 362524-26-3P
 (optoelectronic devices fabricated with dual purpose electroactive copolymers and the copolymers and their prepn.)
 L49 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2003 ACS
 2000:377705 Document No. 133:136283 **Light-emitting** electrochemical cells based on poly(9,9-bis(3,6-dioxaheptyl)-

fluorene-2,7-diyl). Lee, J.-I.; Hwang, D.-H.; Park, H.; Do, L.-M.; Chu, H. Y.; Zyung, T.; Miller, R. D. (Basic Research Lab., ETRI, Taejon, 305-350, S. Korea). Synthetic Metals, 111-112, 195-197 (English) 2000. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science S.A..

AB To enhance color stability of **light-emitting** electrochem. cell (LEC) made with poly(9,9-bis(3,6-dioxaheptyl)-fluorene-2,7-diyl) (BDOH-PF), BDOH-PF **end-capped** with anthracene was prepd. by Ni(0) mediated polymn. Moreover, a copolymer of 9,9-bis(3,6-dioxaheptyl)-2,7-dibromofluorene and 9,10-dibromoanthracene which was also **end-capped** with anthracene, was synthesized by the same polymn. method. Less excimer emission in photoluminescence (PL) spectra were obsd. in these polymers compared to the previous BDOH-PF. LECs were fabricated using blends of lithium triflate and the prepd. polymers. These LECs showed high brightness at low applied voltages. In the **electroluminescence (EL)** spectra, narrow blue emission was obsd. initially in these LECs and the **EL** spectra were getting broader because of excimer formation. **End capping** with anthracene and/or copolymn. with anthracene led to strong inhibition of excimer formation though it was not suppressed completely.

IT **196614-53-6D**, 9,9-Bis(3,6-dioxaheptyl)-2,7-dibromofluorene homopolymer, **endcapped** reaction products with 9-bromoanthracene or 2-bromofluorene **286941-75-1D**, 9,9-Bis(3,6-dioxaheptyl)-2,7-dibromofluorene-9,10-dibromoanthracene copolymer, **endcapped** reaction products with 9-bromoanthracene (light-emitting electrochem. cells based on poly(9,9-bis(3,6-dioxaheptyl)-fluorene-2,7-diyl) and its copolymers)

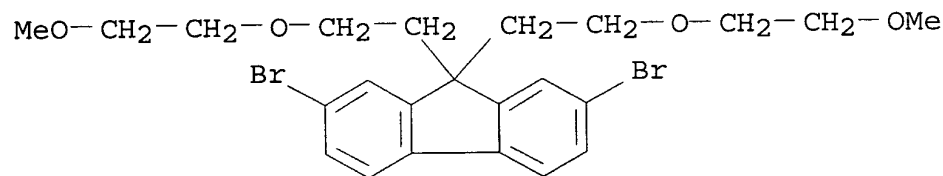
RN 196614-53-6 HCAPLUS

CN 9H-Fluorene, 2,7-dibromo-9,9-bis[2-(2-methoxyethoxy)ethyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 180690-29-3

CMF C23 H28 Br2 O4



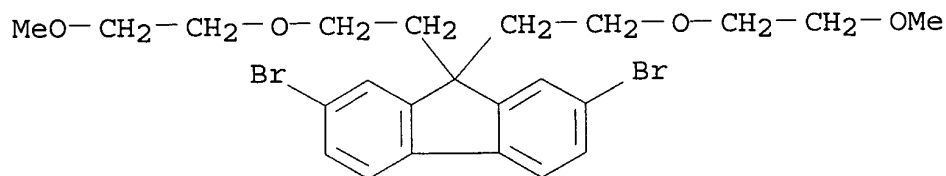
RN 286941-75-1 HCAPLUS

CN Anthracene, 9,10-dibromo-, polymer with 2,7-dibromo-9,9-bis[2-(2-methoxyethoxy)ethyl]-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 180690-29-3

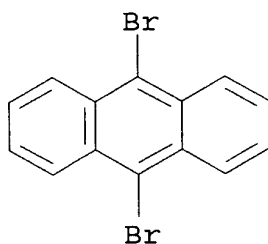
CMF C23 H28 Br2 O4



CM 2

CRN 523-27-3

CMF C14 H8 Br2



CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 72, 73

ST polybis(dioxaheptyl)fluorenediyl **light emitting**
electrochem cell

IT Electrochemical cells

Luminescence

Luminescence, **electroluminescence**

(light-emitting electrochem. cells based on

poly(9,9-bis(3,6-dioxaheptyl)-fluorene-2,7-diyl) and its
copolymers)

IT 1133-80-8D, 2-Bromofluorene, **endcapped** reaction products
with poly(9,9-bis(3,6-dioxaheptyl)-fluorene-2,7-diyl) 1564-64-3D,
9-Bromoanthracene, **endcapped** reaction products with
poly(9,9-bis(3,6-dioxaheptyl)-fluorene-2,7-diyl) and its copolymer
196614-53-6D, 9,9-Bis(3,6-dioxaheptyl)-2,7-dibromofluorene
homopolymer, **endcapped** reaction products with
9-bromoanthracene or 2-bromofluorene **286941-75-1D**,
9,9-Bis(3,6-dioxaheptyl)-2,7-dibromofluorene-9,10-dibromoanthracene
copolymer, **endcapped** reaction products with
9-bromoanthracene

(**light-emitting** electrochem. cells based on poly(9,9-bis(3,6-dioxaheptyl)-fluorene-2,7-diyl) and its copolymers)

IT 33454-82-9, Lithium triflate
(**light-emitting** electrochem. cells based on poly(9,9-bis(3,6-dioxaheptyl)-fluorene-2,7-diyl) and its copolymers)

L49 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2003 ACS
2000:161357 Document No. 132:195614 Colored polymer films for color filters and **liquid crystal** displays. Yamashiki, Yuka; Eguchi, Masuichi; Watanabe, Takuo; Tsukamoto, Jun (Toray Industries, Inc., Japan). PCT Int. Appl. WO 2000012591 A1 20000309, 46 pp. DESIGNATED STATES: W: KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1999-JP4650 19990827. PRIORITY: JP 1998-242903 19980828; JP 1998-365620 19981222.

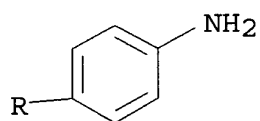
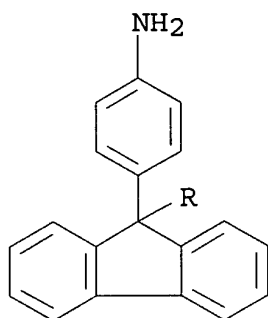
AB A colored polyimide thin film has an av. refractive index ranging from 1.60 to 1.90 and a double refractive index abs. value of less than 0.01. A color filter comprising such a colored polymer thin film and having a reduced retardation and a **liq. crystal** display also comprising such a colored polymer thin film and exhibiting excellent display characteristics are also disclosed.

IT 259881-34-0DP, maleic anhydride-**terminated**
(colored **polymer** films for color filters and **liq. crystal** displays)

RN 259881-34-0 HCAPLUS
CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediy)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

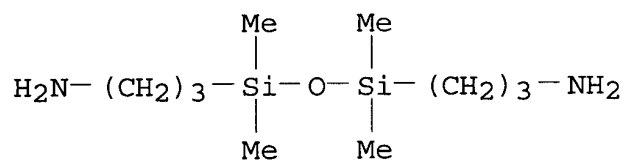
CRN 15499-84-0
CMF C25 H20 N2



CM 2

CRN 2469-55-8

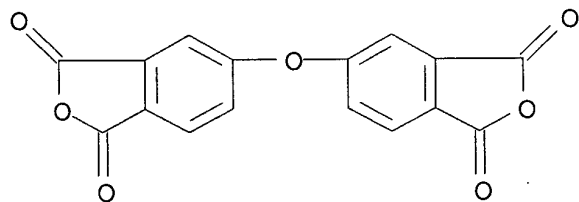
CMF C10 H28 N2 O Si2



CM 3

CRN 1823-59-2

CMF C16 H6 O7



IT 25735-98-2DP, maleic anhydride-terminated

259881-36-2P

(colored polymer films for color filters and
liq. crystal displays)

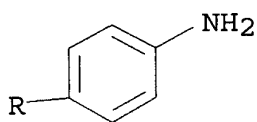
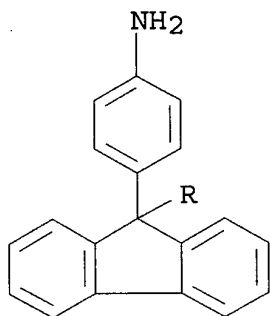
RN 25735-98-2 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with
4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 15499-84-0

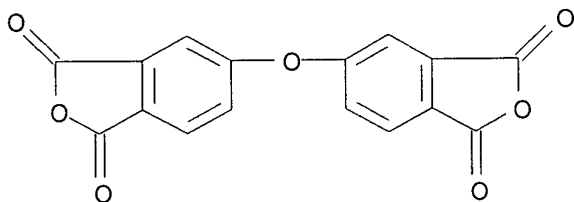
CMF C25 H20 N2



CM 2

CRN 1823-59-2

CMF C16 H6 O7

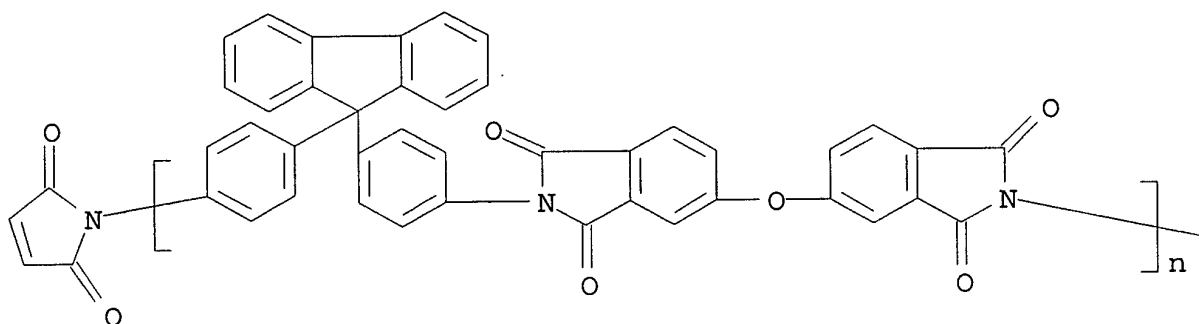


RN 259881-36-2 HCAPLUS

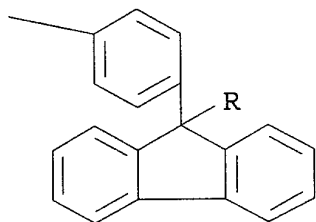
CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)oxy(1,3-dihydro-
1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenylene-9H-fluoren-9-ylidene-]

1,4-phenylene], .alpha.-[4-[9-[4-(2,5-dihydro-2,5-dioxo-1H-pyrrol-1-yl)phenyl]-9H-fluoren-9-yl]phenyl]-.omega.-(2,5-dihydro-2,5-dioxo-1H-pyrrol-1-yl)- (9CI) (CA INDEX NAME)

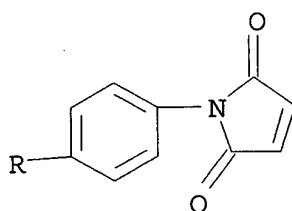
PAGE 1-A



PAGE 1-B



PAGE 2-A



- liq. crystal displays)**
- IT Polyethers, uses
Polyethers, uses
Polyethers, uses
Polyethers, uses
Polyethers, uses
(polyimide-polyketone-polysulfone-siloxane-; colored polymer films for color filters and **liq. crystal displays)**
- IT Polyamides, uses
Polyamides, uses
Polyamides, uses
(polyimide-polysulfone-, siloxanes; colored polymer films for color filters and **liq. crystal displays)**
- IT Polyethers, uses
Polyethers, uses
Polyethers, uses
(polyimide-siloxane-; colored polymer films for color filters and **liq. crystal displays)**
- IT 25035-81-8P, Methacrylic acid-methyl methacrylate-styrene copolymer
(colored polymer films for color filters and **liq. crystal displays)**
- IT 108-31-6DP, Maleic anhydride, reaction products with polyamic acids, polyimides 84329-59-9DP, maleic anhydride-**terminated**
188557-46-2DP, maleic anhydride-**terminated** 207724-80-9P
259881-34-0DP, maleic anhydride-**terminated**
259881-35-1DP, maleic anhydride-**terminated** 259881-38-4P
(colored **polymer** films for color filters and **liq. crystal displays)**
- IT 154213-98-6, EFKA 47
(colored polymer films for color filters and **liq. crystal displays)**
- IT **25735-98-2DP**, maleic anhydride-**terminated**
63172-31-6DP, reaction products with maleic anhydride
259881-36-2P
(colored **polymer** films for color filters and **liq. crystal displays)**
- IT 259881-40-8P
(colored polymer films for color filters and **liq. crystal displays)**
- IT 147-14-8, C.I. Pigment Blue 15:6 980-26-7, C.I. Pigment Red 122
3573-01-1, C.I. Pigment Red 209 4051-63-2, C.I. Pigment Red 177
14302-13-7, C.I. Pigment Green 36 30125-47-4, C.I. Pigment Yellow 138
36888-99-0, C.I. Pigment Yellow 139 84632-65-5, C.I. Pigment Red 254
215247-95-3, C.I. Pigment violet 23 259881-37-3
(colored polymer films for color filters and **liq. crystal displays)**

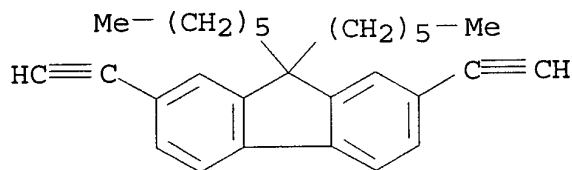
L49 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2003 ACS
1999:455999 Document No. 131:215056 Synthesis and luminescence studies of poly(fluorenylene ethynylene)s. Hong, J. M.; Cho, H. N.; Kim, D. Y.; Kim, C. Y. (Polymer Materials Lab., KIST, Seoul, 130-650, S.

- Korea). Synthetic Metals, 102(1-3), 933-934 (English) 1999. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science S.A..
- AB Poly(9,9'-di-n-hexyl-2,7-fluorenyleneethynylene-m-phenyleneethynylene) (PDHFMPE) and poly(9,9'-di-n-hexyl-2,7-fluorenylene ethynylene-p-phenylene ethynylene) (PDHFPPE) were synthesized. Thermal characteristics of these polymers were detd. by DSC and TGA to reveal that these polymers could be crosslinked at high temp. UV-Vis absorption, IR and Raman spectra were examd. also. Photoluminescence spectra showed green **light emission** with the PL max. at 490 nm for meta and 472 nm for para structure. These polymers could be easily crosslinked thermally or by UV-irradn. in an argon atm. With the increasing of the crosslinking d., the intensity of photoluminescence decreased despite of slight change in absorption spectra.
- IT **242474-85-7DP, bromobenzene-endcapped**
242474-87-9DP, bromobenzene-endcapped
 (synthesis and luminescence studies of poly(fluorenylene ethynylenes))
- RN 242474-85-7 HCAPLUS
- CN 9H-Fluorene, 2,7-diethynyl-9,9-dihexyl-, polymer with 1,3-dibromobenzene (9CI) (CA INDEX NAME)

CM 1

CRN 220625-90-1

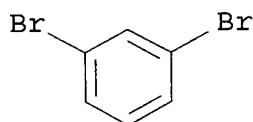
CMF C29 H34



CM 2

CRN 108-36-1

CMF C6 H4 Br2



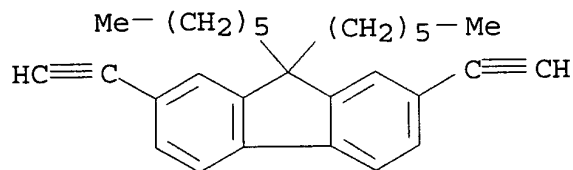
RN 242474-87-9 HCAPLUS

CN 9H-Fluorene, 2,7-diethynyl-9,9-dihexyl-, polymer with 1,4-dibromobenzene (9CI) (CA INDEX NAME)

CM 1

CRN 220625-90-1

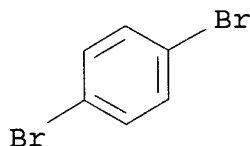
CMF C29 H34



CM 2

CRN 106-37-6

CMF C6 H4 Br2



- CC 37-5 (Plastics Manufacture and Processing)
 Section cross-reference(s): 73, 76
- ST polyfluorenyleneethynylene phenyleneethynylene synthesis TGA DSC
 photoluminescence **electroluminescence**
- IT Differential scanning calorimetry
 Luminescence
 Luminescence, **electroluminescence**
 Thermogravimetric analysis
 (synthesis and luminescence studies of poly(fluorenylene
 ethynylenes))
- IT 108-86-1DP, Bromobenzene, reaction products with
 dibromobenzene-2,7-diethynyl-9,9-dihexylfluorene copolymers
242474-85-7DP, bromobenzene-endcapped
242474-86-8P 242474-87-9DP, bromobenzene-endcapped
 242474-88-0P
 (synthesis and luminescence studies of poly(fluorenylene
 ethynylenes))

L49 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2003 ACS
 1999:354939 Document No. 131:144918 Cross-linkable Polymers Based on
 Dialkylfluorenes. Klaerner, G.; Lee, J.-I.; Lee, V. Y.; Chan, E.;
 Chen, J.-P.; Nelson, A.; Markiewicz, D.; Siemens, R.; Scott, J. C.;
 Miller, R. D. (IBM Almaden Research Center, San Jose, CA,

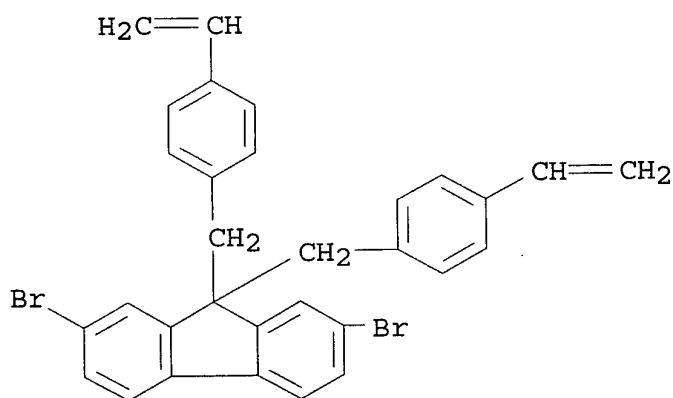
95120-6099, USA). Chemistry of Materials, 11(7), 1800-1805 (English) 1999. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

- AB We have prepd. a series of cross-linkable oligo- and poly(dialkylfluorene)s by nickel(0)-mediated polymn. of 2,7-dibromo-9,9-dialkylfluorene (alkyl = n-hexyl) and 4-bromostyrene. The resulting fully sol. and processable, styryl-functionalized oligomers and polymers can be cross-linked via the vinyl **end-groups** by curing at 175-200 .degree.C, consistent with the autopolymn. mechanism of styrene. These relatively mild conditions render the materials insol. and enable multilayering of polymers in org. **light emitting** devices. At the same time, the elec. and/or optical properties of the cross-linked polymers are preserved and no deleterious species or undesirable byproducts are produced. Furthermore, the crosslinking allows control of the supramol. ordering of the planarized rigid rod-type fluorene segments in the polymer backbone that leads to suppression of troublesome excimer/aggregate in the photo- and **electroluminescence**.
- IT **236092-95-8DP**, reaction products with 4-bromotoluene (crosslinkable **electroluminescent** styryl-functionalized dibromodihexylfluorene polymers)
- RN 236092-95-8 HCAPLUS
- CN 9H-Fluorene, 2,7-dibromo-9,9-bis[(4-ethenylphenyl)methyl]-, polymer with 2,7-dibromo-9,9-dihexyl-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 236092-91-4

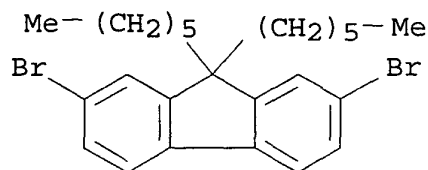
CMF C31 H24 Br2



CM 2

CRN 189367-54-2

CMF C25 H32 Br2



IT **201807-75-2DP**, 2,7-Dibromo-9,9-dihexylfluorene homopolymer,
 reaction products with 4-bromostyrene or 4-bromotoluene
 (crosslinkable **electroluminescent** styryl-functionalized
 dibromodihexylfluorene polymers)

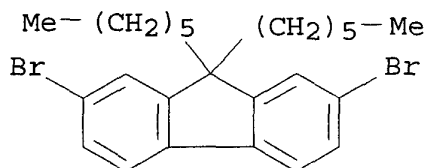
RN 201807-75-2 HCAPLUS

CN 9H-Fluorene, 2,7-dibromo-9,9-dihexyl-, homopolymer (9CI) (CA INDEX
 NAME)

CM 1

CRN 189367-54-2

CMF C25 H32 Br2



CC 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 73

ST styryl functionalized dialkylfluorene polymer thermal crosslinking;
 LED styryl functionalized dialkylfluorene polymer;
electroluminescence styryl functionalized dialkylfluorene
 polymer

IT **Electroluminescent** devices
 Glass transition temperature
 Luminescence
 Luminescence, **electroluminescence**
 Polymerization catalysts
 (crosslinkable **electroluminescent** styryl-functionalized
 dibromodihexylfluorene polymers)

IT Crosslinking
 (thermal; crosslinkable **electroluminescent**
 styryl-functionalized dibromodihexylfluorene polymers)

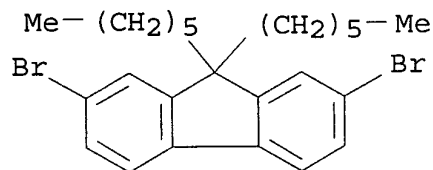
IT 106-38-7DP, 4-Bromotoluene, reaction products with
 2,7-dibromo-9,9-dihexylfluorene homopolymer or copolymer
236092-95-8DP, reaction products with 4-bromotoluene
 (crosslinkable **electroluminescent** styryl-functionalized

- dibromodihexylfluorene polymers)
- IT 2039-82-9DP, 4-Bromostyrene, reaction products with
2,7-dibromo-9,9-dihexylfluorene homopolymer **201807-75-2DP**,
2,7-Dibromo-9,9-dihexylfluorene homopolymer, reaction products with
4-bromostyrene or 4-bromotoluene
(crosslinkable **electroluminescent** styryl-functionalized
dibromodihexylfluorene polymers)
- IT 1592-20-7, p-Chloromethylstyrene 16433-88-8, 2,7-Dibromofluorene
(in monomer prepn.; crosslinkable **electroluminescent**
styryl-functionalized dibromodihexylfluorene polymers)
- IT 236092-91-4P
(monomer; crosslinkable **electroluminescent**
styryl-functionalized dibromodihexylfluorene polymers)
- IT 111-78-4, 1,5-Cyclooctadiene 366-18-7, 2,2'-Dipyridyl 1295-35-8,
Bis(1,5-cyclooctadiene)nickel(0)
(polymn. catalyst; crosslinkable **electroluminescent**
styryl-functionalized dibromodihexylfluorene polymers)
- L49 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2003 ACS
1999:205641 Document No. 131:19538 Oxidative Stability and Its Effect
on the Photoluminescence of Poly(Fluorene) Derivatives: **End**
Group Effects. Lee, Jeong-Ik; Klaerner, Gerrit; Miller,
Robert D. (IBM Almaden Research Center, San Jose, CA, 95120, USA).
Chemistry of Materials, 11(4), 1083-1088 (English) 1999. CODEN:
CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.
- AB Poly(9,9-dialkylfluorene-2,7-diyl) derivs. **end-**
capped with 2-fluorenyl, 9,9-di-n-hexyl-2-fluorenyl, and
9-fluorenone-2-yl substituents have been synthesized through
Ni(0)-mediated polymn. Absorption and emission spectra of these
polymers were measured after annealing at elevated temps. in air as
a function of annealing time. The fluorescence stability of the
polymers **end-capped** using 2-bromo-9,9-di-n-
hexylfluorene was much better than for the polymers **end-**
capped with 2-bromofluorene. The exceptional sensitivity of
the luminescence of the polymers **end-capped** with
2-fluorenyl substituents to thermal annealing in air is rationalized
by a combination of .pi.-stacking and chem. oxidn. of the
end groups to fluorenones. The latter was
demonstrated by the IR spectra of annealed films and comparison of
the results with the absorption, emission, and IR spectra of the
polymers deliberately **end-capped** using
2-bromo-9-fluorenone. This study is directed toward the
investigation of color stability of planarized .pi.-systems for
light emitting diodes (LEDs).
- IT 214462-09-6DP, reaction products with fluorene
endcapping agents
(effect of **end group** and oxidative stability
on photoluminescence of polyfluorene derivs.)
- RN 214462-09-6 HCAPLUS
CN Anthracene, 9,10-dibromo-, polymer with 2,7-dibromo-9,9-dihexyl-9H-
fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 189367-54-2

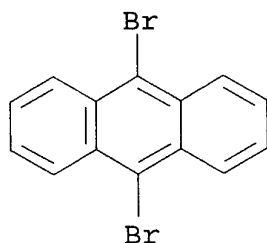
CMF C25 H32 Br2



CM 2

CRN 523-27-3

CMF C14 H8 Br2



- CC 36-5 (Physical Properties of Synthetic High Polymers)
 Section cross-reference(s): 38, 73
- ST fluorene polymer oxidative stability photoluminescence; **end group** fluorene polymer photoluminescence
- IT **Electroluminescent** devices
 Luminescence
 Polymerization
 (effect of **end group** and oxidative stability on photoluminescence of polyfluorene derivs.)
- IT Polymers, properties
 (fluorene group-contg.; effect of **end group** and oxidative stability on photoluminescence of polyfluorene derivs.)
- IT Polymerization catalysts
 (nickel-based; effect of **end group** and oxidative stability on photoluminescence of polyfluorene derivs.)
- IT Functional groups
 (terminal **groups**; effect of **end group** and oxidative stability on photoluminescence of polyfluorene derivs.)
- IT 111-78-4, 1,5-Cyclooctadiene 366-18-7, 2,2'-Bipyridyl 1295-35-8,

- Bis(1,5-cyclooctadienyl)nickel
(catalyst; effect of **end group** and oxidative stability on photoluminescence of polyfluorene derivs.)
- IT 1133-80-8DP, reaction products with polyfluorene derivs.
3096-56-8DP, reaction products with polyfluorene derivs.
214462-09-6DP, reaction products with fluorene **endcapping** agents 226070-05-9DP, reaction products with polyfluorene derivs.
(effect of **end group** and oxidative stability on photoluminescence of polyfluorene derivs.)
- IT 226070-05-9DP, reaction products with polyfluorene derivs.
(**endcapping** agent; effect of **end group** and oxidative stability on photoluminescence of polyfluorene derivs.)
- IT 111-25-1, n-Hexyl bromide 1133-80-8, 2-Bromofluorene
(starting material; effect of **end group** and oxidative stability on photoluminescence of polyfluorene derivs.)
- L49 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2003 ACS
1996:684759 Document No. 125:342810 Organic electronic device using **charge-transporting** polyester. Seda, Katsumi; Imai, Akira; Iwasaki, Masahiro (Fuji Xerox Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 08208820 A2 19960813 Heisei, 31 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-197158 19950711. PRIORITY: JP 1994-282486 19941024; JP 1994-329853 19941206.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

- AB The device contains an **charge-transporting** polyester contg. a partial structure I-a and/or I-b [R1-2 = H, alkyl, alkoxy, substituted amino, halo, aryl; X = a divalent arom. group; T = a branched divalent C2-10 hydrocarbyl; k = 0, 1]. The polyester may satisfy these conditions; (1) contg. -O-(Y-O)mR or -O-(Y-O)m-CO-Z-CO-OR' [Z = a dicarboxylic acid residue; R, R' = H, alkyl, aryl, aralkyl; Y = a dialc. residue; m = 1-5] as both **end groups**, (2) formed from a dicarboxylic acid contg. I-a and/or I-b (and -OC-Z-CO-) as repeating units and a diol contg. -O-(Y-O)m-, and (3) having a polymn. degree 5-5,000. The device may be an electrophotog. photoreceptor contg. the polyester in its surface layer. The device shows good **charge-transporting** ability and abrasion resistance, and high photosensitivity for the photoreceptor.
- IT **183136-54-1P 183136-61-0P**
(in prepn. of **charge-transporting** polyester for electrophotog. photoreceptor)
- RN 183136-54-1 HCAPLUS
- CN Benzenepentanoic acid, 4,4'-[(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[(4-methylphenyl)imino]]bis[.gamma.,.gamma.-dimethyl-,

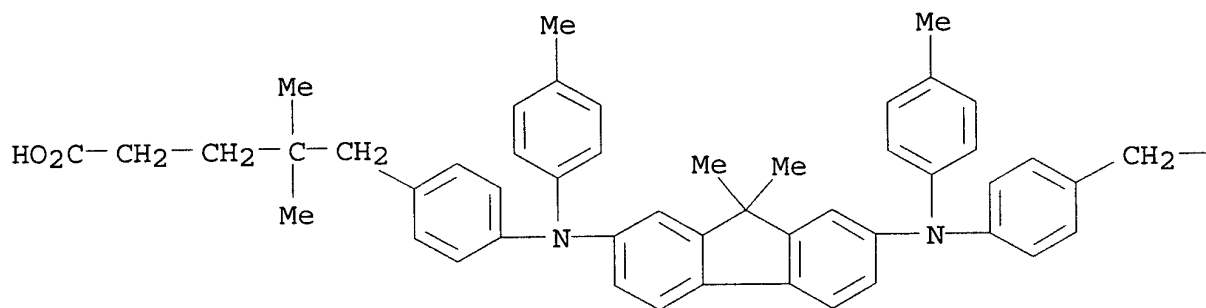
polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

CM 1

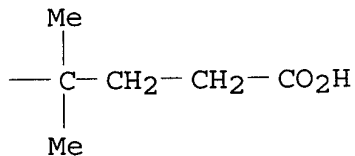
CRN 183136-53-0

CMF C55 H60 N2 O4

PAGE 1-A



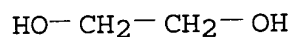
PAGE 1-B



CM 2

CRN 107-21-1

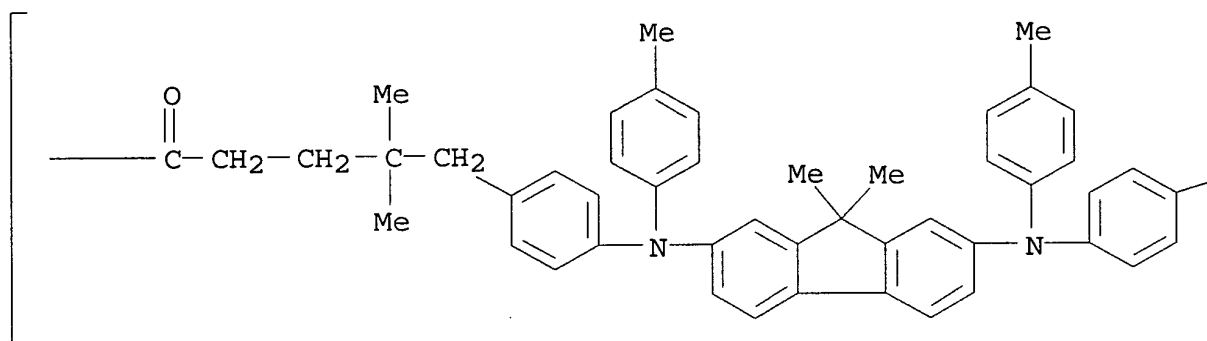
CMF C2 H6 O2



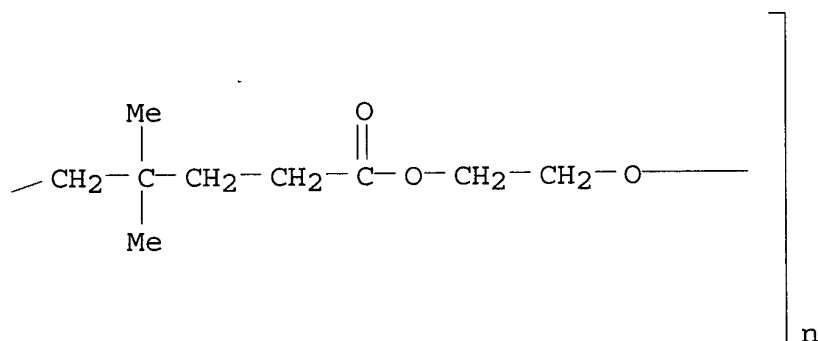
RN 183136-61-0 HCAPLUS

CN Poly[oxy-1,2-ethanediyl-oxy(4,4-dimethyl-1-oxo-1,5-pentanedyl)-1,4-phenylene[(4-methylphenyl)imino](9,9-dimethyl-9H-fluorene-2,7-diyl)[(4-methylphenyl)imino]-1,4-phenylene(2,2-dimethyl-5-oxo-1,5-pentanedyl)] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IC ICM C08G063-685
 ICS C08G073-00; C08L067-03; G03G005-07; H01L051-00; H01L031-08;
 H01L051-10

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 38

ST **electron transporting** polyester electrophotog
 photoreceptor; electronic device **electron**
transporting polyester; arylamine benzidine **electron**
transporting polyester

IT Electrophotographic photoconductors and photoreceptors
 (org. electronic device using **charge-**
transporting polyester)

IT Polyesters, preparation
 (org. electronic device using **charge-**
transporting polyester)

IT 183136-44-9P 183136-46-1P 183136-48-3P 183136-50-7P
 183136-52-9P **183136-54-1P** 183136-56-3P 183136-57-4P
 183136-58-5P 183136-59-6P 183136-60-9P **183136-61-0P**
 183136-62-1P